CALIFORNIA COASTAL COMMISSION
CENTRAL COAST DISTRICT OFFICE
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M 9b

Dates

Permit Approved.....6/17/82
Staff.....R. Brooke
Previous Coastal Commission Action &

Amendment Approved.....2/14/01
Revised Findings
Staff Report.....4/24/01
Hearing Date.....5/07/01

STAFF REPORT
PERMIT AMENDMENT

Application Number.....4-82-300-A5

Applicant.....**California Department of Parks and Recreation (DPR)**

Project Location.....Oceano Dunes State Vehicular Recreation Area (ODSVRA*), approximately 1 mile south of the City of Pismo Beach, San Luis Obispo County.

Project Description.....Request to amend conditions concerning appropriate limits on day use at Oceano Dunes State Vehicular Recreation Area, to establish day & overnight use limits and a Technical Review Team.

Original Project Description...Construct 35,000 linear feet of fencing to keep off-highway recreational vehicles out of sensitive vegetated dunes and wetland environments; place kiosks for access control at Grand Avenue and Pier Avenue (4-82-300).

Substantive File Documents....Administrative records for 4-82-300, 4-82-300-A, 4-82-300-A2, 4-82-300-A3, and 4-82-300-A4; San Luis Obispo County certified Local Coastal Program; and attached Exhibit 9 (list of references).

Commissioners on the Prevailing Side .....Dettloff, Allgood, Hart, Kruer, McClain-Hill, McCoy, Nava, Potter, Reilly, Woolley, Wan

Staff Note: The Coastal Commission approved this proposed amendment after public hearing on February 14, 2001 by a vote of 11-1. In the course of that approval, the Commission modified several conditions (located on pages 6-8 of this staff report), and Exhibit 12 has been included to identify the general location of the expanded seasonal exclosure area, as approved by the Commission. The final Commission vote was predicated on the understanding that the amendment would be brought back

* Oceano Dunes SVRA was known as Pismo Dunes SVRA until the mid-1990s; for clarity, references herein are to Oceano Dunes SVRA (ODSVRA), except where Pismo Dunes SVRA is found in direct quotations from previous documents.

before the Commission for the adoption of revised findings that reflected the changes made by the Commission as well as the staff report addendum. All changes made at the February 14, 2001 hearing, and relevant findings, are shown in this report with ~~strikeout~~ for text deletions and underline for replacement text.

EXECUTIVE SUMMARY

Staff recommends that the Commission **approve** the coastal development permit amendment, as a means of fulfilling Conditions 3B, 3D, and 6 of CDP ~~4~~-82-300. The proposed amendment would institute interim vehicle use limits at the ODSVRA and establish an interagency Technical Review Team to act as an advisory body to the Superintendent of the ODSVRA.

Oceano Dunes is a complex ecological system that also supports a variety of recreational activities pursuant to DPR's legislative mandate. Critical to the establishment of interim vehicle use limits is a means to evaluate visitor impacts and management effectiveness. The TRT would be part of an adaptive management process that oversees on-going monitoring of both environmental and use trends in the Park for the purpose of supporting decision-making about such things as total day and overnight use in the park. Such a process would allow for adjustments, based on what we learn over time, in not only allowable use limits, but other critical management concerns of the park as well. Rather than rely on a fixed number for day and overnight use, this approach provides a procedural framework for responding to changing environmental conditions and increases the likelihood for overall success of management activities.

DPR proposes an interim limit on vehicle day-use of 4,300 per day, including OHVs, and an interim limit of 1,000 overnight camping units. This proposal reflects the current vehicle use limits of the ODSVRA, and given the improvements in enhancement and management of environmentally sensitive habitats, DPR believes it can manage this intensity of use without significant degradation of coastal resources. DPR also proposes that an allowance be made for day-use vehicle limits to exceed 4,300 only during the four major holiday periods of Memorial Day, July 4th, Labor Day, and Thanksgiving, on an interim basis, in order to allow historic use patterns during busy holiday periods.

Although a change in the day use and camping vehicle limits may be subject to update and refinement in the future, based on ongoing monitoring efforts and as we learn more about use trends and potential resource impacts, interim limits need to be established at this time. In an effort to establish day-use vehicle and camping limits which more closely ~~match the current levels of use and~~ reflect those recognized at the time of coastal development 4-82-300 approval and~~, at the same time,~~ which serve to protect the biological resources of the ODSVRA, separate limits should be placed on street-legal vehicles, OHVs, and camping units. Thus, ~~staff recommends~~ the Commission finds that interim limits of ~~3,000~~ 2,580 street-legal vehicles per ~~24 hour period~~ day, 1,000 camping units (defined as one street-legal vehicle that enters the Park under its own power) per night, and a total of ~~2,000~~ 1,720 off-highway vehicles ~~per day~~ at any given time are appropriate. ~~In addition,~~ allowances may be made for interim street-legal and off-highway vehicle limits to be exceeded only during the four major holiday periods of Memorial Day, July 4th, Labor Day, and Thanksgiving, in order to conduct a comprehensive

monitoring and comparative analysis of historical levels of visitor uses and impacts during these highest attendance periods.

As proposed by DPR, the TRT will prepare annual reports that highlight the TRT's major accomplishments, projects, correspondence, and recommendations as well as a summary of subcommittees, working groups, and task force activities. In addition, this coastal development permit is conditioned to be reviewed ~~three years~~ annually from the date of approval of the revised conditions and findings ~~approval~~, ~~and every five years thereafter,~~ in order to evaluate the overall effectiveness of the Technical Review Team in managing vehicle impacts at the ODSVRA. If, after ~~three years~~ any annual review, ~~a review of~~ the TRT's tasks and recommendations are found to be inconsistent with the intent of the Commission's approval, an alternative approach to resource management, or set of management measures, may need to be instituted.

The adaptive management approach, made possible by the TRT, provides a more responsive management process for effectively balancing EHSA protection with the existing recreational use. The likelihood of minimizing significant disruption of sensitive habitat is enhanced through the provision of such a management process. In addition, this approach is consistent with the Commission's oversight of on-going management of coastal resources at Oceano, which have always been premised on revisiting periodically the question of intensity of use in relation to protection of ESHA. Finally, as conditioned to reevaluate the TRT effectiveness in managing impacts, efforts to protect ESHA will be maximized within the broader context of balancing DPR's recreational mandate with Coastal Act Policies. Thus, DPR's proposed coastal development permit amendment, as conditioned, is consistent with Coastal Act Sections 30230, 30231, 30232, and 30240.

Should the Commission adopt these revised conditions and findings on May 7, 2001, the following timeline will guide future activities relative to this amendment.

No later than: August 7, 2001	→	TRT is established
November 7, 2001	→	TRT meets
Potential workshop with the Commission in November		
January 1, 2002	→	First annual report due
May 7, 2002	→	1) Final TRT Charter due
		2) CCC permit review
January 1, 2003	→	Second annual report due

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PROCEDURAL NOTE

The Commission's regulations provide for referral of permit amendment requests to the Commission if:

1. The Executive Director determines that the proposed amendment is a material change,
2. Objection is made to the Executive Director's determination of immateriality, or

3. The proposed amendment affects conditions required for the purpose of protecting a coastal resource or coastal access.

In this case, the Executive Director has determined that the proposed amendment constitutes a material change.

I. STAFF RECOMMENDATION

Staff recommends that, after public hearing, the Commission adopt the following resolution:

MOTION: ***I move that the Commission approve the proposed amendment to Coastal Development Permit No 4-82-300 pursuant to the staff recommendation.***

STAFF RECOMMENDATION OF APPROVAL:

Staff recommends a **YES** vote. Passage of this motion will result in approval of the amendment as conditioned and adoption of the following resolution and findings. The motion passes only by affirmative vote of a majority of the Commissioners present.

RESOLUTION TO APPROVE A PERMIT AMENDMENT:

The Commission hereby approves the coastal development permit amendment on the ground that the development as amended and subject to conditions, will be in conformity with the policies of Chapter 3 of the Coastal Act and will not prejudice the ability of the local government having jurisdiction over the area to maintain a Local Coastal Program conforming to the provisions of Chapter 3. Approval of the permit amendment complies with the California Environmental Quality Act because either 1) feasible mitigation measures and/or alternatives have been incorporated to substantially lessen any significant adverse effects of the amended development on the environment, or 2) there are no feasible mitigation measures or alternatives that would substantially lessen any significant adverse impacts of the amended development on the environment.

II. STANDARD CONDITIONS OF APPROVAL

1. **Notice of Receipt and Acknowledgment.** The permit is not valid and development shall not commence until a copy of the permit, signed by the permittee or authorized agent, acknowledging receipt of the permit and acceptance of the terms and conditions, is returned to the Commission office.

2. **Expiration.** If development has not commenced, the permit will expire two years from the date on which the Commission voted on the application. Development shall be pursued in a diligent manner and completed in a reasonable period of time. Application for extension of the permit must be made prior to the expiration date.

3. **Interpretation.** Any questions of intent or interpretation of any condition will be resolved by the

Executive Director or the Commission.

4. **Assignment.** The permit may be assigned to any qualified person, provided assignee files with the Commission an affidavit accepting all terms and conditions of the permit.

5. **Terms and Conditions Run with the Land.** These terms and conditions shall be perpetual, and it is the intention of the Commission and the permittee to bind all future owners and possessors of the subject property to the terms and conditions.

III. SPECIAL CONDITIONS OF APPROVAL

1. **Scope of Permit.** This permit amendment replaces Special Conditions 3B, 3D, and 6 of CDP 4-82-300. This permit amendment also authorizes the institution of interim vehicle (street-legal, off-highway vehicle, and camping) limits at the ODSVRA, and the establishment of an ODSVRA Technical Review Team, for an initial ~~three~~one-year period from the date of approval of the revised conditions and findings.

2. **~~Review~~ Renewal of Permit.** ~~At the end of the initial three-year period~~ Annually, the Commission shall review the overall effectiveness of the Technical Review Team in managing vehicle impacts at the ODSVRA. If the Commission is satisfied with the review, this amendment will remain in effect for an~~other~~ additional ~~five~~ year~~s and shall continue to be subject to a similar review and possible renewal every five years~~. A longer permit term may be requested in the future. Otherwise, an alternative approach to resource management, or set of management measures, may be instituted through this review process.

3. **Interim Vehicle Limits.**

   a. **Interim Day-Use Vehicle Limits.** Except as qualified by 3d, interim limits on motor vehicle use on the beaches and dunes of Oceano Dunes SVRA shall be no more than ~~3,000~~ 2,580 street-legal vehicles per day. This limit does not include off-highway vehicles, or street-legal vehicles attributable to allowed overnight camper use within the ODSVRA.

   b. **Interim Camping Limits.** Except as qualified by 3d, interim limits on overnight motor vehicle use on the beaches and dunes of Oceano Dunes SVRA shall be no more than 1,000 camping units (i.e. 1,000 street-legal vehicles) per night. This limit does not include off-highway vehicles or street-legal vehicles attributable to allowed day-use within the ODSVRA.

   c. **Interim Off-Highway Vehicle Limits.** Except as qualified by 3d, interim limits on off-highway vehicle use on the beaches and dunes of Oceano Dunes SVRA shall be no more than ~~2,000~~ 1,720 off-highway vehicles at any given time. This limit does not include the street-legal vehicles used to tow or trailer the OHVs into the ODSVRA.

   d. **Holiday Periods.** Interim street-legal and off-highway vehicle limits may be exceeded only during the four major holiday periods of Memorial Day (Saturday through Monday), July 4th (one day and any adjacent weekend days), Labor Day (Saturday through Monday), and Thanksgiving (Thursday through Sunday). ~~During the initial three-year period the TRT shall~~

~~conduct a comprehensive, long-term monitoring and comparative analysis of the resource impacts associated with varying levels of visitor uses, including these highest attendance periods.~~

4. **Technical Review Team.** The Technical Review Team (TRT), advisory to the Superintendent of the Oceano Dunes State Vehicular Recreation Area, shall be established within three months, and shall meet within six months, from approval of the revised conditions and findings of this coastal development permit amendment (4-82-300-A5). A Charter for the TRT, establishing members, roles and procedures for the Team, shall be submitted to the Executive Director for review within one year of approval of the revised conditions and findings of this coastal development permit amendment.

   a. The Charter shall ~~include~~ establish a specific structure and process in order for the TRT to do at least the following:

      i. Assist in building community support through problem solving, consensus building, new constituency development, and increasing understanding about the ODSVRA; and

      ii. Develop recommendations to the Superintendent of the ODSVRA regarding additional monitoring studies, adjustments to day and overnight use limits, and management strategies.

   b. The Charter shall also include at least the following:

      i. ~~a~~A provision to create a scientific subcommittee to identify, develop and evaluate the scientific information needed by decision-makers to ensure that the ODSVRA's natural resources are adequately managed and protected. The subcommittee shall be~~,~~ composed of resource experts representing the five government agencies (CCC, SLO County, USFWS, DFG, DPR) and at least two independent scientists with expertise in Western snowy plover, California least tern, steelhead trout or other species of concern, as well as ecological processes~~,~~ to analyze technical data and provide scientific recommendations to the TRT: and~~.~~

      ii. A provision to submit a list of proposed members of the scientific subcommittee to the Executive Director for review and approval.

   c. The Charter shall establish a specific structure and process in order for the scientific subcommittee to do at least the following:

      i. Recommend to the TRT the scientific studies and investigations that may be necessary to develop information needed by resource managers;

      ii. Advise the TRT regarding the protection of the SVRA's natural resources by helping identify and review needed research measures and restoration efforts to rebuild or protect the ODSVRA natural resources;

      iii. Evaluate monitoring results and reevaluate monitoring protocols contained in Oceano Dunes SVRA annual reports for the Habitat Monitoring System, reports on the breeding, nesting and fledgling success of the western snowy plover and California least tern

populations in the SVRA, and other reports related to the environmental impacts of recreational activities;

iv. Provide comments on the adequacy of various scientific research studies and make management recommendations to the TRT: and

v. Submit the full recommendations of the scientific subcommittee to the Commission and make them available to the public, as part of the annual review process required in Special Condition 2.

5. Annual Reports. The TRT and the ODSVRA Superintendent shall prepare annual reports (for the period of October to September) summarizing annual recreational use and habitat trends at the Park; and ~~that~~ highlighting the TRT's major accomplishments (including progress made towards meeting the objectives of the TRT), projects, correspondence, and recommendations as well as a summary of subcommittees, working groups, and task force activities. The first ~~two~~ annual report~~s~~ shall include (1) a draft or final Charter for the TRT, and (2) a description of the process by which the TRT will rank research and management questions and priorities. The second annual report shall include (1) the final Charter for the TRT (if not submitted with the first annual report), (2) the TRT's ranking of research and management questions and priorities, and (3~~2~~) a scope of work for those projects identified as the highest priority. Subsequent reports will include a status report on the progress of those projects as well as updates to research and management priorities and the corresponding scopes of work for addressing those new priorities. One component of the ~~three-year~~ Commission's annual review ~~by the Commission~~ will be to evaluate the progress of the TRT's work as measured against the submitted work plans.

In identifying and selecting the priority research and management questions and projects, the TRT shall consider information developed by the USFWS and shall include the following:

a. Appropriate management techniques for the western snowy plover and California least tern, including an evaluation of:

~~1)~~**i.** How the geographic location of nests, proximity of nests to foraging areas, and nest closure techniques affect the hatching and fledgling success of the species, and

~~2)~~**ii.** The potential environmental, recreational and economic costs and benefits of alternative beach/dune habitat protection strategies;

b. Appropriate management techniques for protecting water quality and dune habitats from potential pollutants that might result from motor vehicle fluids or other contaminants that might enter the ODSVRA and ocean through polluted runoff or direct discharges; and

c. The success of past revegetation efforts within the ODSVRA and the potential need for continuing or expanding those efforts, including expansion of vegetation exclosures.

d. Conduct a comprehensive, long-term monitoring and comparative analysis of the resources impacts associated with varying levels of use, including the highest (peak-use) attendance periods.

If alternative research and management questions and projects are identified as a higher priority than those listed in a through d ~~c~~ above, the annual reports shall discuss the basis for such a determination. Annual reports shall be submitted to San Luis Obispo County and the California Coastal Commission for informational purposes no later than January 1st of the following year. The first annual report (or portion thereof) shall be completed and submitted to the Commission no later than January 1, 2002.

IV. FINDINGS AND DECLARATIONS

A. Project Description and Background

1. Project Location

Oceano Dunes State Vehicular Recreation Area (ODSVRA), formerly Pismo Dunes SVRA (PDSVRA) is located on the central California coast along the southern coastal region of San Luis Obispo County. Primary access to this area is via Highway 101 and California State Highway 1. The ODSVRA is bordered on the north by the non-vehicular section of Pismo State Beach, on the west by the Pacific Ocean, on the south by Oso Flaco Lake and along its eastern and southeastern boundaries by the City of Grover Beach and Oceano.

ODSVRA encompasses 3,590 acres and includes approximately six miles of sandy beach; about 1,500 acres are available for OHV use. It varies in width from a few hundred yards along its northerly two miles to up to three miles wide along its southerly portion (see Exhibit 2). ODSVRA itself is divided into different regions based upon allowable activities and include areas set aside strictly for resource protection, street legal vehicle use, and a combination of street legal/off-highway vehicle use (see Exhibit 3). The separation and delineation of these specific areas was developed through the past cooperative efforts of the Coastal Commission and County of San Luis Obispo Board of Supervisors, the California Department of Fish & Game (DFG) and the California Department of Parks & Recreation (DPR).

Land use patterns of the lands adjoining the study area are characterized (from north to south) as ranging from urban commercial and industrial, and eventually shifting to rural agricultural and industrial. Specifically, along ODSVRA's narrow northern end, urban retail establishments, commercial campgrounds and urban residential land uses characterize the eastern border. Progressing south, land use is characterized by a small rural airport, a State Park dune preserve, agricultural fields, an oil refinery and its associated oil fields, and open ranch lands.

2. Amendment Submittal

In order to address ongoing concerns regarding the intensity of use at Oceano Dunes State Vehicular Recreation Area, the California Department of Parks and Recreation proposes to amend Coastal Development Permit 4-82-300 as a means of fulfilling the original requirements of this permit (specifically, Special Conditions 3D and 6). This amendment proposes to do the following:

1. Establish an interim limit on vehicle day-use of 4,300 per day, including OHVs, and an interim limit of 1,000 overnight camping units. The SVRA's General Plan of 1975 identified the carrying capacity of the Park to be 4,300 day-use vehicles, and given the improvements in enhancement and management of environmentally sensitive habitats, DPR believes it can manage this intensity of use without significant degradation of coastal resources.

   In order to allow historic use patterns during busy holiday periods on an interim basis, and in consistency with the County of San Luis Obispo Board of Supervisors Resolution No. 98-355, day use vehicle limits may be exceeded only during the four major holiday periods of Memorial Day, July 4th, Labor Day, and Thanksgiving during an initial three year period to allow for comprehensive monitoring and comparative analysis of historical levels of visitor uses and impacts during these highest attendance periods.

2. Establish an interagency/stakeholder Technical Review Team (TRT) for the ODSVRA, which would be responsible for providing on-going management recommendations to the ODSVRA Superintendent.

   a. The TRT would be expected to do the following:

      1) Assist the ODSVRA Superintendent in the protection of the SVRA natural resources by helping identify and review needed research and recommend management measures and restoration efforts to rebuild or protect the ODSVRA resources;
      2) Assist in building community support through problem solving, consensus building, new constituency development, and increasing understanding about the ODVSRA;
      3) Evaluate monitoring results and reevaluate monitoring protocols contained in Oceano Dunes SVRA annual reports for the Habitat Monitoring System, reports on the breeding, nesting and fledgling success of the western snowy plover and California least tern populations in the SVRA, and reports on the social impacts of recreational impacts and habitat condition within Oceano Dunes SVRA;
      4) Develop recommendations to the Superintendent of the ODSVRA regarding additional monitoring focuses, adjustments to day and overnight use limits, and management strategies; and
      5) Provide oversight review for various research studies.

   b. The TRT shall be composed of no less than nine and no more than thirteen voting members employed by Federal, State, or local agencies with expertise in management of natural resources, representatives of local user groups, conservation and other public interest organizations, scientific and educational organizations, and members of the public interested in the protection and multiple use management of the ODSVRA resources. The TRT shall initially be composed of nine members as specified. Additions up to a maximum of thirteen will be considered with concurrence of both the TRT and the Oceano Dunes SVRA Superintendent should circumstances indicate that such additions are necessary to reflect a balance of interests or to reflect changing dynamics of stakeholders and/or issues. As such, a representative from each one of the following government agencies and interest groups will be voting members and the Superintendent of the ODSVRA will be a non-voting member.

1) California Coastal Commission
2) San Luis Obispo County
3) United States Fish & Wildlife Service
4) California Department of Fish & Game
5) California DPR, Off-Highway Motor Vehicle Division Commission
6) OHV community
7) Environmental community
8) Local government (e.g. from the Five Cities Area)
9) Business community

A balance of interests (e.g. recreational, environmental, scientific) and representation (e.g. government agencies, general public, organizations) among the members of the TRT shall be maintained

c. The TRT meetings will be open to the public and publicized at least one week prior to the meeting. The frequency and procedural aspects of TRT meetings will be established by the stakeholders themselves; however, they will meet no less than two times a year.

d. The TRT will prepare annual reports, which will be submitted to the County of San Luis Obispo and the Coastal Commission, that highlight the TRT's major accomplishments, projects, correspondence, and recommendations as well as a summary of any subcommittees, working groups, and task force activities.

e. The Department of Parks & Recreation will provide administrative support (meeting rooms, supplies, etc.) for the TRT.

f. Agenda items may come from a number of sources including, but not limited to, the Superintendent, TRT members, and TRT working groups, subcommittees, and task forces. Members of the public or constituency groups are encouraged to contact a member of the TRT to recommend an agenda item.

3. Background

Vehicles have been driven on the beach at Oceano for at least 70 years. Prior to the 1980s, vehicles were operated on the entire 16 miles of beach from Pismo Beach to the north to Mussel Rock in Santa Barbara County to the south. Now, street-legal vehicles are allowed on approximately five miles of the beach from Grand Avenue to the southern boundary of the ODSVRA and OHVs are restricted to about three miles of the beach, from a point one mile south of Pier Avenue (Milepost 2) to just south of Milepost 8, and on the dunes inland about two miles. The most southern and eastern portions of the ODSVRA are closed to vehicle use.

Original acquisition of land for Pismo State Beach began in 1934, when140 acres was acquired. In 1951, the beach area immediately north and south of Pismo Beach Pier was acquired, which now comprises the non-vehicular day-use area (72 acres) of Pismo State Beach. From 1958 to 1964, acquisition of the small parcels contained within the Halcyon and La Grande subdivisions continued, which is the present-day Pismo Dunes Natural Preserve. In 1974, the 847-acre PG&E parcel was acquired for off-highway vehicle use, and the Oceano Dunes State Vehicular Recreation Area was established.

Even though land for off-highway vehicle (OHV) use was acquired in 1974 and the Pismo State Beach and Pismo Dunes General Development Plan and Resource Management Plan was approved by South Central Coast Regional Commission in 1975, the Department of Parks and Recreation did not begin active management of Oceano Dunes State Vehicular Recreation Area until 1982. That year, DPR proposed the construction of entrance kiosks and placement of fencing along portions of the perimeter of ODSVRA and around isolated "vegetation islands" and wetlands in the dunes.

On June 17, 1982, prior to certification of San Luis Obispo County's Local Coastal Program, the South Central Regional Coastal Commission approved coastal development permit 4-82-300 to allow DPR to construct protective fencing around sensitive habitats and place two kiosks for access control. This permit, including four subsequent amendments, addressed the number of users to be allowed in ODSVRA (Special Conditions 3B, 3D, and 6). In August 1982, the Coastal Commission approved CDP 4-82-300-A, allowing modifications to the conditions of approval (moving the location of the interim staging area site approximately ¾ mile north of its original location, and setting forth more specific fencing requirements of the foredune and Sand Highway areas). In June 1983, the Coastal Commission approved CDP 4-82-300-A2, modifying condition #3B to allow an increase in the number of overnight camping spaces within the ODSVRA from 500 to 1000. In August 1984, the Coastal Commission approved CDP 4-82-300-A3, modifying condition #3E(a) to permit the alteration of protective fence barrier alignments within the ODSVRA. In October 1991, the Coastal Commission approved CDP 4-82-300-A4, modifying condition 1C to eliminate equestrian access over the Oso Flaco causeway, or in the vicinity of the Oso Flaco Lakes. This amendment also allowed the construction of a gate across Oso Flaco Lake Road at the east entrance to the parking lot.

Consequently, the coastal development permit was conditioned to, among other things, require that "OHV day use will be limited to a specified number of users established in consultation with and agreement by the County of San Luis Obispo and the Executive Director of the Coastal Commission and the Department of State Parks." In 1993 and 1994 the Commission reviewed compliance with this condition and found that there was insufficient information to be able to make a determination of what, if any, limits should be placed on the number of OHV day users. To provide the necessary information, the Commission required that the Department of Parks and Recreation prepare, in consultation with San Luis Obispo County and Commission staff, a carrying capacity study for submission to and approval by the Commission. The carrying capacity study for Oceano Dunes State Vehicular Recreation Area was completed in June 1998.

Condition Compliance History

Three conditions are relevant to the action of determining condition compliance. Special Condition 3B, as amended, which applies to camping, states:

> *Beginning 4th of July weekend 1983, Beach camping within the Parks units shall be restricted to a maximum of 500 units* with each unit available only through a reservation obtained through the State Parks Reservation system. Thereafter, admittance to the Park for purposes of overnight camping will be denied to*

> *individuals without a valid reservation unless vacant unreserved camping spaces are available.*
>
> **One unit equals a campsite for a single camper vehicle.*

Special Condition number 3D, as amended, which applies to OHV day use, states in part:

> *On or before January 1983, the following will occur: OHV day use will be limited to a specified number of users established in consultation with and agreement by the County of San Luis Obispo and the Executive Director of the Coastal Commission and the Department of State Parks. OHV day use fees may be collected.*

Special Condition 6 of the amended permit, which applies to both camping and OHV use, states in applicable part:

> *If, after an annual (or any other) review it is found that the ORV use within the SVRA is not occurring in a manner that protects environmentally sensitive habitats and community values consistent with the conditions of this permit and the County's Local Coastal Plan, then OHV access and the number of camp units allowed may be further limited by the Executive Director with concurrence by resolution of the Board of Supervisors of San Luis Obispo County. If the above reviews find that OHV use in the SVRA is consistent with the protection of environmentally sensitive habitats and community values, and/or that additional staff and management revenues become available to the DPR, levels of OHV access and the allowable number of camp units may be increased not to exceed the enforcement and management capabilities of the DPR by determination of the Executive Director with concurrence by resolution of the Board of Supervisors of San Luis Obispo County.*

In 1991, DPR requested that the Executive Director increase the number of allowed camping units from 500 to 1,000. On June 14, 1991, the Executive Director approved the increase, subject to concurrence by the San Luis Obispo County Board of Supervisors. On October 1, 1991, the Board of Supervisors concurred with the Executive Director's action and the increase became effective. On May 18, 1993, the Board of Supervisors, by letter to the Executive Director, requested a decrease in the number of camper units to 500 with a camper unit defined as "a maximum of 2 self-propelled vehicles along with whatever additional vehicles they have towed to the site." This limit would allow 1,000 overnight self-propelled vehicles in the park (500 campsites x 2 self-propelled vehicles per site). The total number of vehicles this limit could allow is unknown because it is not known how many additional vehicles would be towed into the site. DPR indicated that limits on individual overnight vehicles can be enforced more effectively than trying to identify a "camping unit," since there are no established campsites and it is relatively easy to count vehicles.

The action by San Luis Obispo County requesting a decrease in the number of camper units after several public hearings, along with the controversial nature of this matter, resulted in Coastal Commission review of Coastal Development Permit 4-82-300 for condition compliance.

On March 16, 1994, the Commission held a public hearing on the matter of condition compliance for Coastal Development Permit 4-82-300. Special Condition number 3D does not state on what basis a specified number of OHV day users will be established, only that the County, the Executive Director, and the Department of Parks and Recreation (DPR) are to consult and agree to a specified number. DPR's Off-Road Vehicle Division had agreed at that point to perform a capacity study. The Commission formalized this agreement by voting to:

1) Require the California Department of Parks and Recreation to perform and submit a carrying capacity study so that appropriate limits can be determined for day use and overnight use, as required by Coastal Development Permit No. 4-82-300 conditions #3 and #6 … [The] scope of study … will cover counting of all day time uses and users … and type and number of vehicles. In addition, there will include a survey of infrastructure constraints … and environmental and user conflicts/constraints.

2) Approve the 1,000 vehicle limit for overnight camping purposes at Pismo Dunes State Vehicle Recreation Area, consistent with the County's recommendation. This limit will be in effect until the completion of the carrying capacity study.

The Findings adopted in support of this action clarify that this study "…will be used as a guideline to determine the appropriate limits on day use, OHV use, and camper units at a Commission Meeting subsequent to submittal of the final report…". As in the original permit, the Commission's primary concern was with the impacts of OHVs to environmentally sensitive habitat, the infrastructure capacity of the ODSVRA, and user group conflicts (e.g. safety).

In April 1996, the San Luis Obispo County Board of Supervisors held a hearing on the carrying capacity study. The Board directed County staff to request comments from other County agencies and interest groups, which recommended changes to the draft study. In October 1996, the Board of Supervisors recommended, 1) that the Coastal Commission accept the conclusions of the carrying capacity study, including changes recommended by interest groups, other County agencies, and the Board of Supervisors; 2) that the carrying capacity be established at 4,300 vehicles per day, including OHVs, and 1,000 camping vehicles; 3) that DPR monitor level of use and reevaluate the limit every three years; and 4) that the Coastal Commission have an independent consultant prepare a new study under contract directly to the Commission. In June 1998, the Carrying Capacity Study final draft was completed.

Carrying Capacity Study

Since 1994 DPR, has prepared and submitted (in 1998) a Final Draft *Oceano Dunes State Vehicular Recreation Area Off-Highway Vehicle Day-Use Carrying Capacity Study* (Carrying Capacity Study). As described by DPR, a primary purpose of the Carrying Capacity Study was to establish a rational basis for restricting OHV day use "to a specified number of users," as required by Special Condition 3D of Coastal Development Permit 4-82-300. Pursuant to the Commission's 1994 action, OHV day use currently is not limited except in the vegetated dune areas, where no OHV use is allowed.

The Carrying Capacity Study proposes 4,300 vehicles as the OHV day use "carrying capacity" of the ODSVRA. Although the submitted study does not include a particular definition of carrying capacity, the 4,300 figure was first derived through a carrying capacity analysis done for the 1975 General Plan.

The figure was based primarily on recreational capacity analyses from other State Park units, with particular focus on the appropriate threshold number of vehicles that would maintain a beneficial visitor experience. It was not based on a comprehensive ecological analysis of the Oceano Dunes environment in relation to the appropriate number of OHVs. However, DPR concluded that the 4,300 figure would not have any adverse effects, based on the results of data collection and data interpretation concerning visitor types, interaction and compatibility of uses, visitor safety, sensitive natural resources, air quality, and sanitation and traffic impacts on the local community.

In particular, the Carrying Capacity Study present data that shows a general improvement in the vegetated areas originally protected in 1982. However, no specific data is presented that correlates actual OHV use levels with environmental impacts. While the submitted study is a significant analysis of current environmental trends at ODSVRA, it reveals the difficulty in setting a proper fixed number limiting day use, in light of the dynamic nature of environmental management questions at the park. In particular, subsequent meetings among DPR representatives and Commission staff have raised questions as to whether a "carrying capacity" approach that focuses solely on a specified number of users can adequately address the dynamics of the different ecosystems, or the wide array of recreational management issues, that are present at ODSVRA, especially in light of an identified need for on-going studies that will address such questions as whether adverse impacts are occurring in areas that might otherwise normally be vegetated dune, or that might serve as western snowy plover or California least tern nesting areas. For example, the Carrying Capacity Study does not adequately address management issues or alternative management measures that would direct not just how much use should occur but when and how such use should be managed to protect the sensitive habitats beyond the vegetation exclosures. Adaptive management through something like a Technical Review Team may more appropriately respond to continually improving management policies and accommodates the complexity of the resource being managed. For these reasons, DPR is proposing to amend Coastal Development Permit 4-82-300.

B. Amendment Analysis

1. Prior Coastal Commission Actions Concerning the ODSVRA

The Commission's prior actions relative to the SVRA include an initial conceptual approval of OHV use on the beach and dunes. Although vehicle use at the ODSVRA predates the Coastal Act, the Commission approved the Pismo State Beach and Pismo Dunes General Development Plan and Resource Management Plan on February 27, 1975, which provided for the future development and public recreational use of the ODSVRA. In 1982, DPR proposed new development to facilitate active management of vehicle use at the Park. The Commission approved permit 4-82-300 (since amended four times) for the construction of fencing to keep OHVs out of the known locations of environmentally sensitive habitats and entrance kiosks. As previously discussed, this action included conditions to further specify and adjust appropriate vehicle use limits at the Park in order to protect sensitive habitat. In particular, in 1994 the Commission required DPR to conduct a carrying capacity study to help in determine an appropriate limit on OHV use. Special Condition number 6 of the 1982 permit clearly indicates that overall vehicle use could be reduced if review of use showed it did not protect environmentally sensitive habitats or community values.

2. Policy Framework

The applicable standards of review for the proposed coastal development permit amendment are Coastal Act Sections 30230-30232, and 30240. In addition, the San Luis Obispo County Local Coastal Program may be used as guidance in reviewing this amendment proposal for consistency with the original Commission action on 4-82-300 and the Coastal Act.

Coastal Act

Section 30230

Marine resources shall be maintained, enhanced, and where feasible, restored. Special protection shall be given to areas and species of special biological or economic significance. Uses of the marine environment shall be carried out in a manner that will sustain the biological productivity of coastal waters and that will maintain healthy populations of all species of marine organisms adequate for long-term commercial, recreational, scientific, and educational purposes.

Section 30231

The biological productivity and the quality of coastal waters, streams, wetlands, estuaries, and lakes appropriate to maintain optimum populations of marine organisms and for the protection of human health shall be maintained and, where feasible, restored through, among other means, minimizing adverse effects of waste water discharges and entrainment, controlling runoff, preventing depletion of ground water supplies and substantial interference with surface water flow, encouraging waste water reclamation, maintaining natural vegetation buffer areas that protect riparian habitats, and minimizing alteration of natural streams.

Section 30232

Protection against the spillage of crude oil, gas, petroleum products, or hazardous substances shall be provided in relation to any development or transportation of such materials. Effective containment and cleanup facilities and procedures shall be provided for accidental spills that do occur.

Section 30240

(a) Environmentally sensitive habitat areas shall be protected against any significant disruption of habitat values, and only uses dependent on those resources shall be allowed within those areas.

(b) Development in areas adjacent to environmentally sensitive habitat areas and parks and recreation areas shall be sited and designed to prevent impacts which would significantly degrade those areas, and shall be compatible with the continuance of those habitat and recreation areas.

Local Coastal Program

Although not a standard of review for this permit amendment, policies of the San Luis Obispo County LCP provide a useful context for evaluating the consistency of the proposed amendment with the original Commission action on 4-82-300.

> **Policy 1 for Environmentally Sensitive Habitats: Land uses Within or Adjacent to Environmentally Sensitive Habitats.** *New development within or adjacent to locations of environmentally sensitive habitats (within 100 feet unless sites further removed would significantly disrupt the habitat) shall not significantly disrupt the resource. Within an existing resource, only those uses dependent on such resource shall be allowed within the area.*
>
> **Policy 18 for Environmentally Sensitive Habitats: Coastal Stream and Riparian Vegetation.** *Coastal streams and adjoining riparian vegetation are environmentally sensitive habitat areas and the natural hydrological system and ecological function of coastal streams shall be protected and preserved.*
>
> **Policy 27 for Environmentally Sensitive Habitats: Protection of Terrestrial Habitats.** *Designated plant and wildlife habitats are environmentally sensitive habitat areas and emphasis for protection should be placed on the entire ecological community. Only uses dependent on the resource shall be permitted within the identified sensitive habitat portion of the site.*
>
> **Policy 34 for Environmentally Sensitive Habitats: Protection of Dune Vegetation.** *Disturbance or destruction of any dune vegetation shall be limited to those projects which are dependent upon such resources where no feasible alternatives exist and then shall be limited to the smallest area possible. Development activities and uses within dune vegetation shall protect the dune resources and shall be limited to resource dependent, scientific, educational and passive recreational uses.*
>
> **Policy 35 for Environmentally Sensitive Habitats: Recreational Off-Road Vehicle Use of Nipomo Dunes.** *Within designated dune habitats, recreational off-road vehicle traffic shall only be allowed in areas identified appropriate for this use.*
>
> **Planning Area (South County) Standards for Pismo State Beach and State Vehicular Recreation Area.**
>
> *4. <u>General Development Plan Revisions.</u>*
> *…Should the terms and conditions of the coastal development permit* [4-82-300] *not be enforced or accomplished or should they not be sufficient to regulate the use in a manner consistent with the protection of resources, public health and safety and community values, then under the county's police powers, the imposition of an interim moratorium on ORV use may be necessary to protect resources while long-range planning, development of facilities and requisition of equipment and manpower is completed.*
>
> *7. <u>Alternative Camping Areas.</u>*

Beach camping…shall be permitted where it can be established that: a) administration of the entire park unit can be maintained within acceptable carrying enforcement/capacity…. Consistent with the provisions of Coastal Development Permit No. 4-82-300A, this limit can be adjusted either upward or downward based on monitoring of the impacts of this use.

Peak OHV use on the six major weekends must be closely monitored to evaluate the impacts. Monitoring data shall be reviewed jointly by State Department of Parks and Recreation, the county, Department of Fish and Game and the Coastal Commission on an annual basis. Long-term reduction of the peak use may be necessary to ensure adequate resource protection.

8. *Habitat Protection. Natural buffer areas for sensitive habitat areas shall be identified and fenced, consistent with the provisions of Coastal Development Permit No. 4-82-300A and the stabilized dune areas.*

OHV Enabling Legislation

The founding of the Off-Highway Motor Vehicle Recreation Division (OHMVRD) of DPR was in response to demand from OHV enthusiasts for increased opportunities, their willingness to support a state-sponsored OHV recreation program, and environmental concerns related to this recreational activity. The statute authorizing OHV Recreation Areas (PRC 5090 et seq.) was added to the Public Resources Code in 1982. Amendments in 1987 included additional provisions for environmental protection, allowed for the temporary or permanent closure of areas that could not be adequately protected from erosion, and placed priority for implementation of the OHV program on a par with other Department of Parks and Recreation programs. The OHV program receives funding from a portion of the gas tax paid by OHV users, OHV registration fees, fines and forfeitures collected from OHV owners, and fees and other proceeds collected at OHV parks.

The enabling legislation provides for balancing of recreational and environmental factors, specifically allocates funding to both recreational and conservation projects, and requires DPR to operate ODSVRA in a manner consistent with adopted erosion control standards and wildlife habitat protection. The statute also sets up the organizational framework for the administration of the OHV program. The program is administered through an appointed Commission, the Off-Highway Motor Vehicle Recreation Commission, which is a division of DPR. The seven members of the Commission are appointed for four year terms by the Governor (3 appointments), Senate Rules Committee (2 members), and the Speaker of the Assembly (2 members). Originally requiring appointees to have experience and background in OHV activities, the statute now requires that potential members be selected so that the interests of a variety of groups are represented, including biological scientists, rural land owners, soils scientists, and environmental protection groups. The statute also includes additional responsibilities to consider measures to rehabilitate degraded OHV areas, monitor impacts, and ensure compliance with the California Environmental Quality Act.

USFWS/U.S. Army Corps of Engineers Involvement

In 1995, DPR applied for a Regional General Permit from the U.S. Army Corps of Engineers (Corps) to maintain two sand ramps, which provide recreational access throughout the year for users of both

street-legal and off-highway vehicles. Maintenance of the sand ramps involves relocation of wind-blown sand from the top, or street end, of the ramp to the bottom, or beach end, of the ramp. A permit from U.S. Army Corps of Engineers was required because Section 7 of the Endangered Species Act of 1973 requires any federal agency issuing a permit for activities that could potentially harm threatened and/or endangered species to engage in a formal consultation with the USFWS.

In 1996, the USFWS provided a Biological and Conference Opinion, which evaluated the effects of the proposed beach access ramp maintenance on western snowy plovers (and their proposed critical habitat) and California least terns, to the U.S. Army Corps of Engineers and the ODSVRA. According to this Biological Opinion, the proposed action was "not likely to jeopardize the continued existence of the California least tern or the western snowy plover, or result in the adverse modification of proposed critical habitat for the western snowy plover."

In May 1998, USFWS issued the ODSVRA an Endangered/Threatened Species ("Take") Permit (PRT-815214) for the western snowy plover and California least tern. Pursuant to this permit, authorized ODSVRA staff are permitted to take the western snowy plover (locate and monitor nests; float eggs; capture, band, and release; and harass by erection of fencing exclosures) and take the California least tern (locate and monitor nests; harass by erection of fencing exclosures) in conjunction with population monitoring and erecting exclosures. Zero plovers and zero terns are allowed to be incidentally injured or killed while conducting these activities. This take permit is valid until May 2001.

On December 7, 1999, the USFWS released the designation of critical habitat for the Pacific coast population of the western snowy plover. The areas designated as critical habitat, which includes the Nipomo/Oceano Dunes system are occupied by snowy plovers at some time during the year and are considered essential to the species' conservation. This designation includes a description and evaluation of those activities (public or private) that may be affected by such designation. Activities that could adversely effect critical habitat of the coastal population of the western snowy plover fall into seven general categories and include, but are not limited to:

1) Projects or management activities that cause, induce, or increase human-associated disturbance on beaches, including operation of off-road vehicles (ORVs) on the beach and beach cleaning. These activities may reduce the functional stability of nesting, foraging, and roosting areas. Activities within posted, fenced, or otherwise protected nesting areas that may adversely modify critical habitat areas include camping, ORV use (day or night), walking, jogging, clam digging, livestock grazing, sunbathing, picnicking, horseback riding, hang gliding, kite flying, and beach cleaning. The extent to which such activities may need to be restricted will vary on a site-by-site basis based on factors such as configuration of nesting habitat, intensity of recreational activity, compliance with nesting area closures and recreational restrictions, and the types of recreational activities normally occurring on the beach. On a case-by-case basis, restrictions could be removed after the plovers have finished breeding. Activities that may adversely modify critical habitat areas that support wintering birds include beach cleaning that removes surfcast kelp and driftwood, and ORVs driven at night.

2) Actions that would promote unnatural rates or sources of predation. For example, producing human-generated litter that attracts predators or designing exclosures that promote perching by avian predators may adversely modify critical habitat by reducing its functional suitability to support nesting snowy plovers.

3) Actions that would promote the invasion of nonnative vegetation.

4) Activities associated with maintenance and operation of salt ponds. Activities that may adversely modify or destroy critical habitat when conducted during the snowy plover nesting season include flooding inactive salt ponds; raising the water level in active salt ponds; grading, resurfacing, riprapping (rocks placed on the land to prevent erosion), or placing dredged spoils on levees; and driving maintenance vehicles on levees. However, levee maintenance activities also may benefit snowy plovers by providing vegetation-free habitat for nesting.

5) Dredge spoil disposal activities that may adversely modify critical habitat when conducted during the nesting season include deposition of spoil material, laying of pipes to transport the material, and use of machinery to spread the material.

6) Shoreline erosion control projects and activities that may alter the topography of the beach, sand transport, and dune processes. Activities that may adversely modify or destroy nesting, foraging, and roosting habitat include, but are not limited to, beach nourishment (sand deposition, spreading of sand with machinery); construction of breakwaters and jetties (interruption of sand deposition); sand and gravel mining; dune stabilization using native and nonnative vegetation or fencing (decreased beach width, increased beach slope, reduction in blowouts and other preferred nesting habitat); beach leveling (increased tidal reach, removal of sparse vegetation used by chicks for shelter, destruction of rackline (a debris line) feeding habitat). Beach nourishment projects, however, also may have the potential to benefit nesting or wintering plover habitat on some sites experiencing serious erosion.

7) Contamination events. Contamination through oil spills or chemical releases may adversely modify critical habitat by contaminating snowy plovers and/or their food sources.

In addition, a multi-species (including the western snowy plover and California least tern) Habitat Conservation Plan (HCP) is currently being developed for all coastal State Park units in San Luis Obispo County, exclusive of the San Simeon unit. However, according to recent conversations with USFWS, this HCP will only include the non-riding areas of the ODSVRA (it is not clear at this time why the riding area will not be included in the HCP). Thus, the ODSVRA Habitat Management Plan (currently in draft form), prepared by DPR in response to USFWS' 1996 Biological Opinion, will be the primary management tool for the vehicular portion of the Park.

Balancing the legislatively mandated recreational requirements of the off-highway vehicle enthusiast with the numerous other Federal and State mandates is a challenging task. Overall, it is important to evaluate DPR's proposal for maximum consistency with the resource protection policies of the Coastal Act, while acknowledging the ODSVRA's enabling legislation.

3. Biological Resources in the ODSVRA

Several sensitive natural resource areas exist in the SVRA, including vegetation islands, wetlands, and coastal dunes. Approximately 2,000 acres of the total 3,590 acres at the Oceano Dunes SVRA have been permanently fenced and are managed for non-motorized vehicle recreational use and resource management. This area includes the beach and dunes south of the southern riding boundary, Oso Flaco Lake and the surrounding dunes, and the coastal dune scrub area inland of the OHV riding area (see Exhibit 3).

DPR's vegetation protection efforts began in 1983 under permit 4-82-300 and involved the professional input of Coastal Commission, Department of Fish and Game, San Luis Obispo County, and DPR staffs. Initially, vegetation islands were identified and protective fencing placed around them. Large parts of the eastern and southern portions of the SVRA were fenced to restrict vehicle entry into vegetated areas and wetlands, including Oso Flaco Lake and Creek. In general, efforts made towards vegetation enhancement have taken place in the areas previously designated as protected sensitive resource areas, and have not taken place in the "open" ride areas. The exceptions to this are some areas located either upwind of Oso Flaco Lake or some of the "vegetated islands". The most recent photos reveal that at those locations in which restoration efforts have occurred, the vegetation deterioration been arrested, and in most cases has either been effectively reversed or completely restored.

Numerous wildlife species also inhabit the SVRA; the two that have received the most attention are the western snowy plover and the California least tern, both Federally listed species. The ODSVRA's beaches and dunes provide nesting habitat for California least terns; nesting, foraging, and wintering habitat for western snowy plovers, and have been designated critical habitat for the western snowy plover.

Since 1992, breeding and resident western snowy plovers and California least terns have been monitored and protected at ODSVRA. Monitoring and protection efforts are conducted by Oceano Dunes staff and trained volunteers, and monitoring activities, analysis of data, and subsequent annual reports have been completed to meet the requirements of a U.S. Fish and Wildlife Service (USFWS) Biological Opinion under permit number 95-50035-TAW (1-8-95-F/C-17) issued by the U.S Army Corps of Engineers to the California State Parks, Oceano Dunes SVRA. The focus of the studies are to survey western snowy plovers and California least terns nesting within the boundaries of the ODSVRA and Pismo State Beach, to protect birds nesting in high-use vehicle traffic areas, and to monitor the use of large nesting exclosures. Beginning in 1998, snowy plover chick banding was undertaken and continuing efforts have been made to monitor chick survival.

California Least Tern

The California least tern (*Sterna antillarum browni*) is a migratory seabird that winters in Mexico and Central America and nests colonially along the coast of California and Baja California, Mexico. Historically, California least terns have nested primarily on sandy beach, dune, and sand spit areas. The least tern was federally listed as endangered in 1970 and a recovery plan was completed in 1980.

According to the *Biological Opinion for Beach Access Ramp Maintenance at Oceano Dunes State Vehicle Recreation Area* (USFWS; August 1996), referred to as the Biological Opinion, California least terns forage on small fish from nearshore waters, estuaries, bays, and coastal lakes, and proximity to foraging areas is thought to be an important attribute of nesting areas. Of the 42 California least tern nesting colonies identified in California since 1978, 32 are located in the Southern California Bight, twenty of which are found in San Diego County. Ten nesting colonies have been identified north of Point Conception; five of these are in northern Santa Barbara and southern San Luis Obispo Counties, and five are in San Francisco Bay.

Least tern nesting colonies along the California coast are typically located on broad dune-backed sandy beaches or small sandspits where vegetation is either sparse or altogether absent. Nests may be found from within several meters of the shore to 2 or more kilometers inland. Open areas allow nesting birds to detect approaching aerial and terrestrial predators from a distance. When threatened, adult birds will leave the nest and harass an intruder by mobbing, defecating and vocalizing. Least terns normally scrape a small depression about 10 cm in diameter in sand or gravel where two to three eggs are incubated for 20-22 days. The semi-precocial chicks, capable of leaving the nest and hiding within a few days of hatching, are fed entirely on small fish brought by the adult birds. Fledgling occurs 21-33 days after they hatch, at which time the young birds may be led to a freshwater lake or slough, where the parent birds continue to provide food while the young birds learn to forage on their own.

The nesting colonies in northern Santa Barbara and southern San Luis Obispo Counties constitute a relatively small portion of the state-wide population. However, they represent the only currently active nesting areas between Point Conception and San Francisco Bay, and are characterized as Key Habitat Units, defined as major areas of importance for recovery of this species, in the California Least Tern Recovery Plan. The Oso Flaco Lake area is identified as one of these Key Habitat Units. According to the Biological Opinion, the USFWS is unaware of data indicating California least terns nested within the ODSVRA prior to 1990.

Western Snowy Plover

The western snowy plover (*Charadrius alexandrinus nivosus*) is a small shorebird that forages on invertebrates in areas such as intertidal zones and wrack lines, dry sandy areas above the high tide line, salt pans, and the edges of salt marshes. On March 5, 1993, the Pacific coastal population of the western snowy plover was listed as threatened under provisions of the Endangered Species Act; a recovery plan is currently being drafted. For all areas of critical habitat proposed for the western snowy plover, the physical and biological features are provided by intertidal beaches (between mean low water and mean high tide), associated dune systems, and river estuaries. Functional stability of areas containing critical habitat is contingent upon isolation from human disturbance and predation, and is essential to the conservation of the coastal population of the western snowy plover.

Although the western snowy plover breeds at both coastal and inland sites in California, Oregon, Washington, Nevada, and Arizona, the largest segment of this population occurs in California. Breeding populations along the coast may be comprised of both migrating and year-round residents. Nesting occurs from the middle of March through late-September, and the first nests to hatch are

typically observed in mid- to late-April. The Pacific coast population of the western snowy plover has suffered widespread loss of nesting habitat and has experienced reduced reproductive success at many nesting locations. According to the Biological Opinion, factors resulting in loss of nesting habitat include urban development and the encroachment of European beachgrass. Reduced reproductive success is linked to disturbance from human activities such as walking, jogging, exercising pets, horseback riding, and off-road vehicle use, all of which may crush and destroy nests. These activities may also flush adults off nests and away from chicks, and thus interfere with essential incubation and chick rearing behaviors.

Within the study area, plovers can be found foraging from Pismo Creek south to beyond Oso Flaco Creek, and they primarily forage in the wrack line during the day. At night, plovers can be seen with sanderlings foraging for invertebrates in the intertidal zone. Snowy plover nests are similar to those of least terns, but are more often lined with fragments of shells or pebbles. Nesting sites are also more variable than terns and may be found in the open dunes, foredunes, slat flats, sand spits, and vegetated back dunes. The typical clutch size of the snowy plover is three eggs, but can range from one to four. Incubation is complete in 26-32 days and chicks are highly precocial and will leave the nest within hours of hatching to hide and forage on their own. The male bird is left to brood the chicks while the females re-nest with a new mate. Plover chicks typically fledge 29-33 days after hatching.

Coastal Strand

The coastal strand vegetation occupies the primary foredune area just above the high tide/storm tide zone where shore wrack accumulates. The native species that occupy this habitat are primarily low-growing, mat-forming, succulent perennials with deep and extensive root systems. Characteristic plants in this vegetation type include beach saltbush (*Atriplex leucophylla*), coastal saltbush (*A. californica*), beach sand verbena (*Abronia maritima*), sea-rocket (*Cakile maritima*), beach evening-primrose (*Camissonia cheiranthifolia*), and beach-bur (*Ambrosia chamissonis*). These plants are primarily pioneer native plant species that often do not become permanently established and are either washed or blown away during storms. Species diversity is very low and is principally limited to the six species listed.

Active Coastal Dunes

Non-vegetated active coastal dunes are not only a natural phenomenon, but also represent the most common habitat type (characterized by a lack of vegetation) found within the Nipomo Dunes. It is principally within this habitat type that OHV open ride areas have been designated. Dunes of this habitat type form along the coastal strand and extend inland until stabilized by the vegetation of the central coast dune scrub. Active dunes move well inland from the coast and often cover older stabilized dunes by engulfing coastal dune scrub, dune swale, marsh, and riparian plant associations. The Nipomo dune area north of Oso Flaco Lake, which includes both the State Preserve and SVRA, is a vast open space of moving sand of higher secondary dunes that form a massive dune ridge often exceeding 100 feet in elevation. Found in the hollows which are located both windward and leeward of this ridge are pockets or "vegetation islands" of central coast dune scrub, willow thicket, and dune swale. Closer to the ocean the active coastal dune habitat type is broken up by parallel ridges, mounds, and hummocks of central coast foredune vegetation.

Central Coast Foredunes

The central coast foredune plant community occurs just inland from the beaches and active dunes where dune succession has resulted in well established dune hummocks or foredunes. These vegetated foredunes form a corridor just inland from the beach and gradually grade into backdune plant communities (central coast dune scrub, dune swales, etc.) and the active coastal dune habitat. Species richness and total vegetative cover is higher in this community than in the coastal strand community. Common species include exotic European beachgrass (*Ammophila arenaria*), beach sand-verbena, yellow sand-verbena (*Abronia latifolia*), beach-bur, sea rocket, exotic ice plant (*Carpobrotus edulius*), dune morning glory (*Calystegia soldanella*), beach evening primrose, salt bush, cryptantha (*Cryptantha clevelandii*), dune poppy (*Eschscholzia californica maritima*), California aster (*Lessingia filaginifolia*) and coastal silver lupine (*Lupinus chamissonis*). Where exotic sand-binding species like European beach grass and ice plant are dominant, the foredune vegetation exists in a series of sand dunes that parallel the direction of the prevailing winds.

Central Coast Dune Scrub

This community type occupies the inter-dune and secondary dune area inland of the central coast foredune vegetation on dunes which offer more protection from wind and salt spray and which are more stable (i.e. not subject to movement). Coastal dune scrub is a successionally older and more diverse native plant community than that of the previously described communities. The most common native plant species that occupies (and hence stabilizes) the sides and tops of the sand dunes located within this community type is mock heather (*Ericameria ericoides*). A number of other native perennial herbaceous and woody plant species occupy those sandy openings not dominated by mock heather. Principal amongst these are silver beach lupine, beach strawberry (*Fragaria chiloensis*), telegraph weed (*Heterotheca grandifolia*), Blochman's leafy daisy (*Erigeron blochmaniae)*, dune lotus (*lotus heermannii*), crisp dune mint (*Monardella crispa*), coyote bush (*Baccharis pilularis*), shrubby phacelia (*Phacelia ramosissima*), wallflower (*Erysimum insulare suffrutescens*), locoweed (*Astragalus curtipes*), yarrow (*Achillea millefolium*), deerweed (*Lotus scoparius*), and coastal buckwheat (*Eriogonum parvifolium*).

Arroyo Grande Creek

Arroyo Grande Creek, which empties into the Pacific Ocean approximately one-half mile south of Pier Avenue, serves as potential habitat for red-legged frogs and once supported a run of steelhead trout (none have been seen in the last 20-30 years). Due to the creek's location between the entrances to the ODSVRA and the OHV riding area, street-legal vehicles are forced to cross the creek at, or near, where it flows into the ocean. When it is flowing, Arroyo Grande Creek presents an obstacle to lateral vehicular beach travel. Nonetheless, attempts are made to cross the creek even during winter storms when the creek can be more than several feet deep near its convergence with the ocean. Vehicles crossing and/or getting stuck in the creek may have adverse impacts on water quality from dripping oil and gasoline leakage.

The Dunes System as an Environmentally Sensitive Habitat

The Oceano Dunes system, including the OHV riding area, must be considered environmentally sensitive habitat for several reasons. First, coastal dunes are an extremely limited environmental resource of statewide significance. Oceanfront dunes provide unique, sensitive habitat values and

throughout its history, the Commission has placed high priority on the protection and preservation of dune systems. On the Central coast, this includes the Nipomo Dunes , Asilomar Dunes, and the Del Monte Dunes. The significance of the natural resource values of the Nipomo Dunes– particularly the Flandrian component along the shoreline -- is well recognized, as is the potential to restore and enhance these values in degraded areas (see more detail below).

As shown, one of the most critical functions of the dune system is its role as habitat for very unique flora and fauna. These are species which are specially adapted to the conditions and opportunities found in the dunes. Dune plants in particular play a special role by both stabilizing the dunes from the effects of wind erosion, and hosting rare fauna. However, as the natural dune system has been fragmented and degraded, the risk of extinction has increased for several species. Thus, each new impact within the dunes system has and will continue to contribute to the cumulative decline of these species.

Specifically, several rare plant species are found within the ODSVRA, the Oso Flaco Lake Natural Area, and the Tosco Refinery Buffer. At least one sensitive plant species found in the area, marsh sandwort *(Arenaria paludicola)*, is listed by the State and federal governments as being endangered. Other sensitive species include the beach spectacle pod (*Dithyrea maritima*) (ramets), LA Graciosa thistle (*Cirsium loncholepis*), surf thistle (*Cirsium rhothophilium*), San Luis Obispo monardella (*Monardella frutescens*), Gambell's watercress (*Rorippa gambelli*), Nipomo lupine (*Lupinus nipomensis*), and dune larkspur (*Delphinium parryi* var. *blochmnainiae*).

While the distribution of these dune plants may appear sparse to the uninitiated, over time they can collectively be expected to use the entire available dune surface. This is because the Flandrian component of the dunes complex is a dynamic system. The dunes present a rather harsh and difficult growing environment, where the wind keeps shifting the shape of the ground, rainfall rapidly percolates out of reach, and, lacking a distinct topsoil horizon, nutrients are quickly exhausted. This dynamic ecosystem is characterized by significant levels of natural disturbance (wind, moving sand) such that specially-adapted dune species have a competitive advantage over the typical coastal bluff flora found along the central coast of California.

Native dune plants are adapted to (and may actually require) disturbance at some level, but they remain vulnerable to trampling and crushing during the growing season. A single pass by an OHV can leave tracks -- and a disturbed site susceptible to wind erosion -- that will persist for the rest of the year. Staff has observed that in similar dune areas where disturbance has been completely precluded (as at Salinas River Lagoon National Wildlife Refuge), a thin crust forms on top of the sand. This thin and fragile crust is comprised of sand grains, presumably cemented together with calcium carbonate, kelp algins or other such materials available in the immediate environment. The presence of such crusts, their environmental importance, and recreational impacts on them, have been reported elsewhere (for example, at Arches National Park in Utah).

It is not clear whether in coastal dune systems microcrust formation is concurrent with, or follows, establishment of native "pioneer" plants. It appears that they have a possible stabilizing effect on the dunes, by reducing wind erosion and consequent dune movement. The crust supports small colonies of

fungi, moss or lichen, which yield a tiny amount of nutrients in an otherwise relatively sterile sand expanse. The thin but hard crust also appears to inhibit germination or at least rooting of native plant seeds, except where rodent burrows, animal or human footprints have broken the surface. At these broken-through locales, native plant seedlings are often profuse. It can be hypothesized that at these sites, the sandy "soil" is suitable for root penetration, nutrients are available from rodent droppings and/or fungi/moss/lichen remnants, and at least some moisture is to be found under the adjacent intact crust (in what is otherwise a very hostile and xeric environment).

Further stages of dune stabilization follow. As the native (or introduced) dune plants grow, their root systems tend to hold the sand together, providing resistance to wind erosion. Further plant growth attracts plant eaters, particularly rodents and rabbits. These animals in turn attract predators such as hawks and grey foxes. Animal droppings, and the remains of dead plants and animals provide more nutrients, thus leading in successional stages to increasingly more vegetated and stable dunes.

Therefore, the overall growing area ("habitat") needed over the long run is vastly larger than the area occupied by the plants at any one "snapshot" in time. This also helps explain why the entire dune surface -- not just the locations where the plants (and animals) are found in any one particular year -- must be considered as ESHA.

Breeding Habitat for Federally Listed Species

One of the most important habitat values provided by the ODSVRA is the nesting, foraging, and wintering area it provides for the federally threatened western snowy plover. As previously discussed, the ODSVRA is included within the "critical habitat area" for this species designated by the U.S. Fish and Wildlife Service, which includes Pismo Beach and the Nipomo Dunes. Additionally, the Park provides nesting and foraging areas for the federally endangered California least tern.

As seen in Exhibit 5, snowy plover nests have been found up and down the beach and foredune areas within the ODSVRA, and are not necessarily limited to a specific location. Additionally, as discussed above, snowy plovers forage near the wrack line, which often requires them to travel away from their nest. Finally, both snowy plovers and least terns have been known to migrate south toward Oso Flaco Lake, and beyond, during the breeding season. Thus, it is clear that the entire ODSVRA, as it provides nesting and foraging habitat for at least two known federally listed species, is an environmentally sensitive habitat area.

Summary of Biological Resources

Under the Coastal Act, the entire ODSVRA is an environmentally sensitive habitat area. First, as discussed above, the ODSVRA is part and parcel of a significant and sensitive ecological system -- the Flandrian component of the Nipomo-Guadalupe dunes complex. Since approval of Coastal Development Permit 4-82-300 in 1982, much has been learned about the important role of specific areas within the dunes, and how both vegetated and barren sand surfaces contribute to the overall functioning of the dunes habitat system - even when these areas are to one degree or another degraded. In addition, threatened species such as the western snowy plover have since been identified, further highlighting the importance of dune preservation in this area.

Indeed, the ODSVRA, in addition to being an environmentally sensitive habitat area by virtue of its importance as a piece of the larger Nipomo Flandrian dune system, is also existing and potential habitat for particular sensitive species**.** Although the natural formation of the dunes have been substantially altered by vehicle use, the site currently supports rare and important native dune habitats. This includes the significant extent of bare sand habitat, which provide nesting areas for the threatened western snowy plover. Bare sand areas will also support the natural and human induced recurrence of rare native plant and animal species, as will areas of the site where habitat values have been diminished by the presence of non-native species.

Overall, there is no doubt that the ODSVRA is an "area in which plant or animal life or their habitats are either rare or especially valuable because of their special nature or role in an ecosystem and which easily could be disturbed or degraded by human activities and developments." Because native dune plants are superbly adapted to life in an environment subject to periodic disturbance, natural recovery would be expected following removal of disruptive activity.

4. Vehicle Access/Recreation Trends

Visitors access the ODSVRA by paying an entrance fee at either the Grand Avenue or Pier Avenue entrance, located at the northern end of the Park (see Exhibit 2). Off-highway vehicles are either towed or trailered into the Park by street-legal vehicles and overnight campers. In addition, OHVs are available for rent within the open ride area of the Park (this service is offered by private OHV rental businesses located outside the ODSVRA). Camping and OHV use is restricted to the area south of Mile Post 2 -- all OHVs must be transported to this point before unloading. Thus, street-legal vehicles must travel south, approximately one to three miles (from Pier and Grand Avenue, respectively) along this stretch of sandy beach in order to access the OHV area. Consequently, this vehicle travel conflicts with other beach uses and becomes aggravated as street-legal vehicles from the OHV area travel back and forth over the beach to the gasoline, food and beverage support centers to the north, outside of the ODSVRA.

Once inside the boundaries of the OHV (open ride) area, vehicles are essentially free to travel wherever they choose, with the exception of fenced exclosures. Sand Highway, named for its relatively flat surface, serves as an interior corridor to access many of the different riding areas within the ODSVRA. Although camping and day-use activities are permitted throughout the entire OHV area, intensive day-use riding occurs almost entirely in the expansive back dunes while overnight campers typically locate themselves closer to the beach, along the coastal strand and foredune areas. All vehicles are required to stay out of fenced vegetated areas and temporary breeding exclosures; however, there are no restrictions against vehicles driving on the wet beach.

Vehicle Use Data

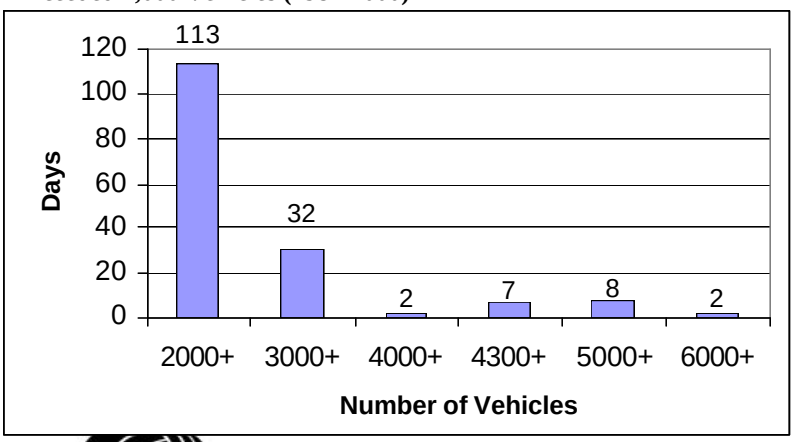
A range of recreational activities occur within the Park. Not all street-legal vehicles that enter the ODSVRA necessarily take part in off-highway vehicle activities. Unlike the period before Oceano Dunes was managed as a SVRA, visitor use to the area is now monitored to provide a basis for balanced and appropriate levels of recreational opportunity, visitor safety and environmental management.

Within the last nine years, three different vehicle count surveys have been conducted at the ODSVRA. The first survey was conducted to support the Access Corridor EIR during the period of April 22 to April 28, 1991 to determine on- and off-highway vehicle numbers and fleet composition. That survey resulted in a weekly average OHV/on-highway vehicle ratio of 0.36, meaning that for every 100 street-legal vehicles, approximately 36 OHVs were towed or trailered into the ODSVRA. The second survey (questionnaire) was conducted between May 28 and August 4, 1994 to shed additional light on visitor and vehicle trends at the Park, in support of the Carrying Capacity Study. That survey, which covered two peak holidays (Memorial Day and 4th of July weekends), resulted in an average OHV/on-highway vehicle ratio of 0.81. The third survey, conducted from June 14 to June 20, 1996 by Park staff had very similar results to that of the 1991 survey, resulting an OHV/on-highway vehicle ratio of 0.36.

Currently, DPR is able to obtain accurate counts of both OHVs and street-legal vehicles entering the Park. Day use and camper vehicles are monitored (counted) on a daily basis by ODSVRA staff within the Park and specially programmed cash registers allow kiosk attendants to collect specific data such as the purpose of the visit (day-use or camping), length of stay (number of nights), and number of OHVs being brought into the Park. Prior to May 1999, determining the approximate number of OHVs in the Park on any given day, or the number over any given time span was a matter of understanding the relationship that exists between OHVs and their sources. In order to determine the number of OHVs that entered the Park, staff applied an OHV/street-legal vehicle ratio derived from the three visitor-use studies (0.36 for the off-season and 0.81 for the peak season) to the street-legal vehicle counts. Additionally, a transitional ratio (0.6) was used for the months of May, September, and November based on the occurrence of peak weekends and higher camper rates during these months. It is important to note that these ratios (derived from survey data collected from 1991-1996) were applied to all data collected from 1982 to April 1998, and it's possible that actual street-legal/OHV ratios were different in 1982 than they are now. For this reason, the estimated number of OHVs within the Park throughout the 1980's may be less accurate than the estimated figures for the 1990's.

It is also important to note that because the counting of vehicles and more recently, OHVs, has historically been divided into two categories (day-use or camping) and regulated by two different vehicle limits (4,300 and 1,000, respectively), day-use and camping data has rarely been analyzed together. In addition, many vehicles enter the Park at night after the kiosk attendants leave, do not pay either a day-use or a camping fee, and thus, are categorized separately as "Free Day Use". Thus, a comprehensive understanding of how many street-legal vehicles and OHVs are in the Park on a daily basis or at any given time, and their collective impact on the Park's resources, is not readily apparent. For the sake of consistency between data collection and current vehicle regulation, the following data analysis refers

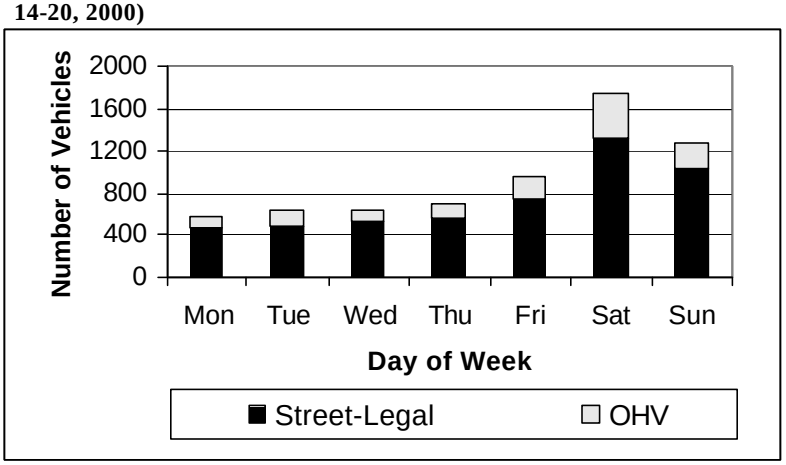
Figure 1 – Number of Days Street-Legal & OHV Day-Use Count Exceeded 2,000 Vehicles (1984-2000)



specifically to either day-use or camping figures. However, because this topic deserves further discussion, the potential impact of such a counting method is discussed in a following section of this report (Proposed Interim Vehicle Limits).

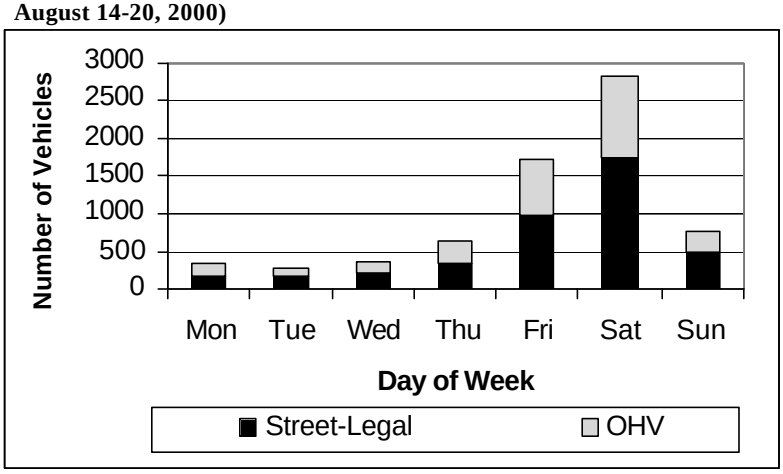
Daily and Weekly Trends. Although completely accurate attendance figures are not available for the 1970's, it is generally acknowledged that the Park attendance exceeded the capacities established by the 1975 General Plan on many holiday weekends (the day-use capacity determined by the 1975 General Development Plan is 4,300 vehicles). As seen in Figure 1, since 1984, the ODSVRA has only exceeded its official (i.e. General Plan) day use carrying capacity on 17 days during particularly busy holiday periods (Memorial Day, 4th of July, and Labor Day weekends). In fact, the number of days that the street-legal vehicle and OHV day-use counts have exceeded 2,000 amounts to only 2.7% of the days in the last 16 ½ years.

Figure 2 – ODSVRA Weekly Day-Use Vehicle Trend (Week of August 14-20, 2000)



Assuming a non-holiday weekend, vehicle data shows a strong correlation between the number of on- and off-highway vehicles in the Park and the day of the week (Figures 2 and 3). The typical weekly vehicle trend can be separated into weekday and weekend use. From Monday to Thursday, vehicle use of all types appears to be relatively low and flat. Starting Friday, the weekend influx begins, typified by both greater number of all vehicles and a greater ratio of OHVs to street-legal vehicles. The data indicates that the number of vehicles accessing the park (either day use or overnight campers) peak on Saturday. Sundays, while part of the weekend peak period, represent a decline in both total number of vehicles and the ratio of OHVs to street-legal vehicles.

Figure 3 – ODSVRA Weekly Camping Vehicle Trend (Week of August 14-20, 2000)



Seasonal Trends. The seasonal vehicle use trends were developed using real monthly data counts on the numbers of day use and camper vehicles. The number of OHVs was estimated by applying the OHV-street-legal vehicle ratios (0.36, 0.6, 0.81) discussed above. The seasonal pattern is quite

regular and repeatable and therefore lends credence to the use of OHV ratios to determine the likely number of OHVs at the Park over a given period of time. As seen in Figure 4, street-legal and OHV use of the ODSVRA peaks around July or August and the slowest part of the year tends to be around December or January, with an occasional low point in March.

Since May 1999, DPR has been able to obtain relatively accurate counts of how many street-legal and off-highway vehicles are entering the Park. This information was used to determine more up-to-date seasonal OHV/street-legal vehicle ratios. As seen in Figure 5, within the last 1 ½ years, the OHV/street-legal vehicle ratio has varied from 0.32 (3,207 OHVs/10,020 street-legal vehicles) in March 2000 to 0.61 (8,776 OHVs/14,447 street-legal vehicles) in May 1999. These figures include all street-legal vehicles and OHVs that entered the Park, regardless of whether they were counted as day-use or camping vehicles. This amounts to a "peak season" (May through September) average ratio of 0.5 and an "off season" (October through April) average ratio of 0.43. So, while the ratio of OHVs to street-legal vehicles does appear to decrease during the off season, the variance is relatively slight. Thus, one can assume that *overall* use of the

Figure 5 – Seasonal OHV/Street-Legal Vehicle Ratio (1999-2000)

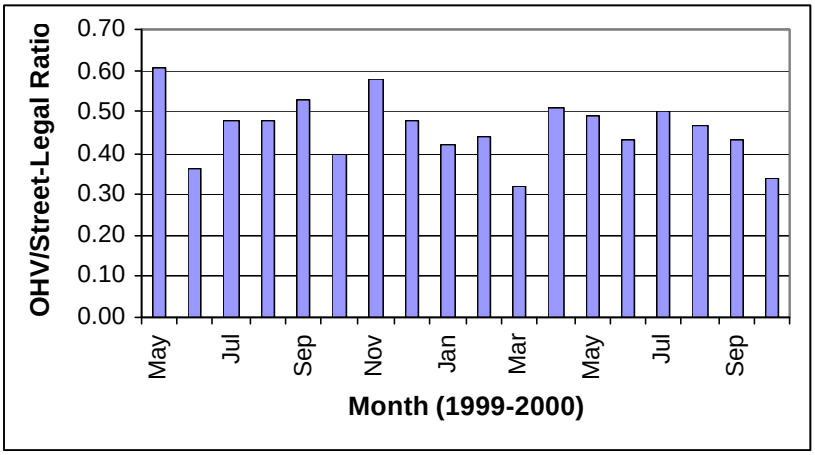
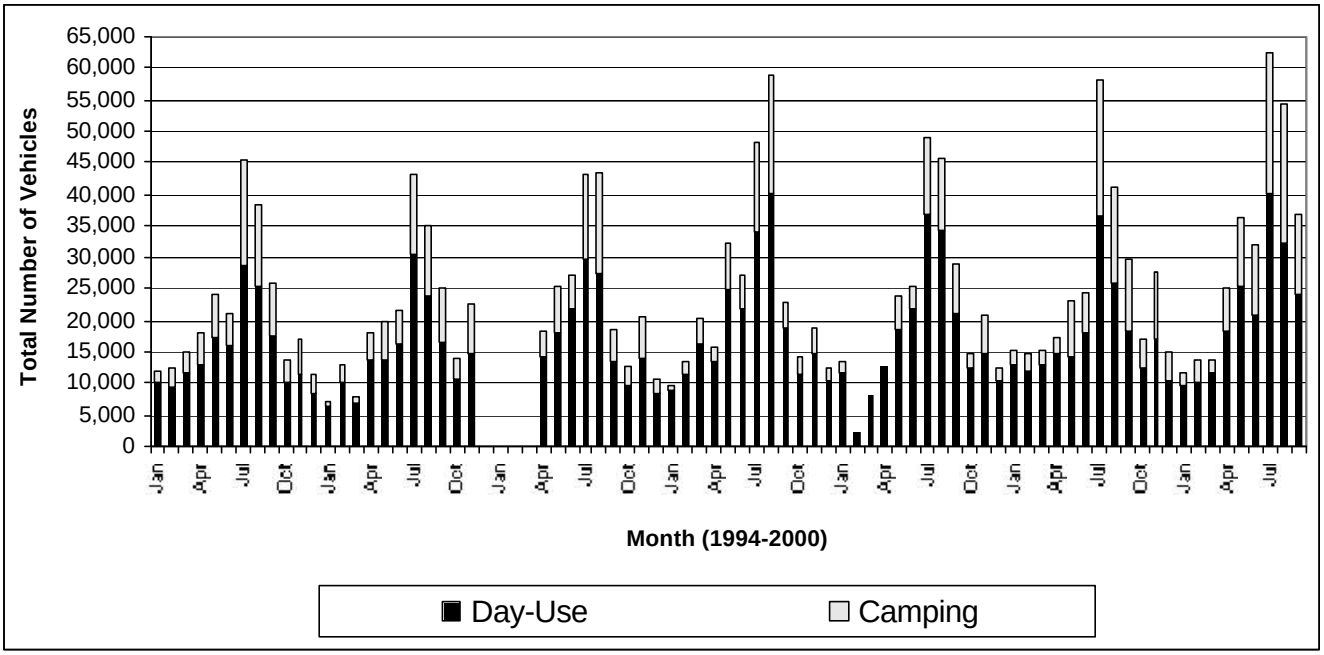


Figure 4 – Seasonal Day-Use and Camping Trends: Street-Legal Vehicles and OHVs (1994-2000)



ODSVRA decreases during the winter and spring,

Alternative Accessways

Currently, the ODSVRA is accessible from two locations: Grand Avenue in the City of Grover Beach and Pier Avenue in the community of Oceano. These entrances were proposed and established pursuant to Coastal Development Permit 4-82-300 in order to control access to the ODSVRA. In 1991, an Environmental Impact Report (EIR) was prepared under the direction of DPR to address the potential environmental effects of developing an alternate entrance to the ODSVRA. One reason to establish an alternative entrance is to avoid the impacts to Arroyo Grande Creek, as well as the long beach drive south into the OHV riding area. Five alternative entrance corridors were investigated as a part of that EIR (see Exhibit 4 for the locations of the five alternative entrances). According to the EIR, both the Grand Avenue and Pier entrances were found to be adequate for continued use as an entrance to the ODSVRA, and should be considered for expansion based on future recreational demand.

Grand Avenue. The preferred alternative to serve as the primary entrance to the ODSVRA, according to the EIR, is the Grand Avenue entrance, as it was determined to be the least environmentally damaging alternative. The southern boundary of Grand Avenue is the most biologically diverse in the corridor. This area contains a variety of native vegetation species and some wetland habitat and is immediately adjacent to the existing 40-acre dune/wetland natural area. The northern border of the corridor consists of a parking lot and mostly urbanized land uses. The continued use of this corridor would not result in the removal of any native vegetation in or adjacent to the corridor and thus, direct impacts to biological resources are less than significant. However, because this entrance is located north of the ODSVRA, street-legal vehicles must travel south, approximately three miles along this stretch of sandy beach, in order to access the OHV area. The stretch of beach between the Grand and Pier Avenue entrances, referred to as the "midramps area," is currently used almost solely for street-legal vehicle travel from the entrances to the OHV area. If the Grand Avenue entrance was no longer being used, it is possible that this beach area could be made available for more passive recreational uses.

Pier Avenue. The second least damaging alternative is the Pier Avenue entrance. The majority of this corridor has been developed for residential and commercial use; the 40-acre dune/wetland natural area is a block north of Pier Avenue. The continued use of this corridor would not result in the removal of any native vegetation in or adjacent to the corridor and thus, would have a less than significant direct effect on biological resources. However, similar to the Grand Avenue entrance, the use of Pier Avenue to access the OHV area requires street-legal vehicles to travel approximately one mile along the sandy beach before reaching the staging area. If a feasible entrance were found south of Pier Avenue, this portion of the beach could be made available for more passive recreational uses.

Railroad Avenue. Of the three alternatives not currently being used as an entrance to the ODSVRA, Railroad Avenue was ranked as the preferred choice. However, development of this corridor would have the greatest adverse effect on local traffic patterns due to increased traffic volumes associated with the Park. The corridor consists of a paved two-lane road from Highway 1 to Creek Avenue, a dirt road. The corridor follows Creek Avenue south approximately a quarter of a mile before turning west through a ruderal field to the existing Arroyo Grande Creek levee. The eastern portion of the

levee contains ruderal vegetation, and as one moves west along the levee, the vegetation changes from ruderal to a group of pine and cypress trees, through a floodplain containing a wet willow grove. This willow habitat is ideal habitat for the two-striped garter snake red-legged frog, and a valuable biological resource since a variety of native wildlife species utilize this area for foraging and nesting activities.
Development of this corridor would result in the loss of a substantial amount of native habitat, the bridge would require the removal of a number of arroyo willows and other native vegetation, and the result would be a dissection of the wet willow grove habitat. Vehicle movement and noise may result in incidental kills of wildlife species, adversely affect nesting success, and inhibit the use of the habitat by certain wildlife species. The development of the parking area, administrative building, and maintenance yard would require the removal of the ruderal vegetation in the field; however, the field provides marginal habitat since it is within the flight pattern of Oceano Airport.

Silver Spur Place. The Silver Spur Place alternative was ranked fourth due largely to significant land use conflicts with adjacent agricultural uses, including loss of prime agricultural land. This corridor consists of a two-lane paved road from Highway 1 to Arroyo Grande Creek, where it turns into a two-lane dirt road. The corridor then turns west and heads toward the dune preserve. A parking lot, kiosk, and other improvements related to the SVRA entrance would be developed on an agricultural field at the end of Silver Spur Place. The road would continue across the Arroyo Grande Creek levee and follow the same route as the Railroad Road alternative.

Development of this corridor would necessitate the widening of 22nd Street and widening and paving Silver Spur Place and the levee road to accommodate two lanes of traffic. A two-lane bridge would be constructed across the levee to gain access to the northern levee road and another bridge would be constructed at the end of the levee road to cross the southern bank of Arroyo Grande Creek. The proposed improvements would result in the loss of commercial row crop plant species in the field, dissection of the willow grove by the bridge, and loss of some conifer, arroyo willow, and cypress trees. Vehicle movement and noise may result in incidental kills of wildlife species, adversely affect nesting success, and inhibit the use of the habitat by certain wildlife species. The loss of trees may reduce the nesting opportunities for native bird species

Callendar Road. The Callendar Road alternative was ranked as the most environmentally damaging alternative as it would have unavoidable significant impacts on biological and visual resources, and on land use. This corridor does not contain any development at the present time. The corridor exits Highway 1 approximately a quarter of a mile south of Callendar Road and enters a disturbed field with a variety of introduced ruderal plant species. From this field the corridor heads directly west across the Southern Pacific Railroad right-of-way into stabilized dune structures. The vegetation found in the stabilized dunes is less disturbed than that found in the field; therefore, a greater density of native shrubs exist.

Development of this corridor requires that either an overpass or underpass be constructed to cross the railroad tracks. West of the SVRA right-of-way the two one-way dirt roads would continue through the stabilized dunes into the SVRA and require the removal of native vegetation the entire width and length of the proposed entrance and exit roads. Overall, development of this corridor would result in

the loss of a substantial amount of native habitat where the road passes through the dune areas. The dune habitat provides foraging and nesting opportunities for native wildlife which are only found in several locations in California. The dissection of this area would result in two separate and smaller units that are presently part of the largest contiguous block of native vegetation along this part of the central coast. In addition, removal of mature eucalyptus trees may disturb the Monarch butterflies that use these trees for resting. Vehicle movement and noise may result in incidental kills of wildlife species, adversely affect nesting success, and inhibit the use of the habitat by certain wildlife species. This in turn could lead to a reduction in plant and animal diversity in the dunes.

Safety

A variety of uses occur on the beach at ODSVRA, including vehicle driving, sunbathing, horse riding, sand castle building, surf fishing, and claming. Although the speed limit on the beach is 15 miles per hour, vehicle-pedestrian accidents do occur. While they are infrequent, such accidents have involved fatalities. Single and multi-vehicle accidents also occur in the dunes inland of the beach and have resulted in fatalities. These accidents can occur, for example, when a vehicle tops a dune at a speed which causes the vehicle to literally fly off the dune and crash in the sand at the base of the dune or into another vehicle. Rollover accidents can occur when a driver attempts to scale a dune face that is too steep. Through data analysis, DPR is identifying factors involved with the rate and cause of vehicular accidents and is developing strategies for reducing the rate of accidents. Some factors that contribute to vehicle accidents include unfamiliarity with equipment, operator error, speed too fast for conditions, and poor visibility. Overall, the Carrying Capacity Study concluded that, in terms of motor vehicle accidents, the ODSVRA is safer than most other off-highway areas in the state and that the visitor accident rate is declining.

5. Resource Impacts of OHV Activity

Resource Monitoring

One of the first resource management tasks of the ODSVRA was the construction of the fence system in 1983 to preserve and protect the dune plant communities. The determination of areas for protection from vehicular recreation was performed jointly by a professional committee of ecologists and managers from several public agencies (San Luis Obispo County, Coastal Commission, DFG, and DPR). As a result of this determination, the "vegetation island" plant communities, Oso Flaco Lake, and the southern 1/3 of the ODSVRA north and south of Osos Flaco Lake were permanently closed to OHV recreation.

In total, approximately 2,000 acres (56%) of the area managed as the SVRA have been fenced and are managed for non-motorized vehicle recreational use and resource management. This area includes the beach and dunes south of the southern riding boundary, Oso Flaco Lake and the surrounding dunes, five vegetation islands: Pavilion Hill, Acacia Eucalyptus Tree, Pipeline, Maidenform Flats, and the Pismo Dunes Natural Preserve Area, and the coastal dune scrub area inland of the OHV riding area.

The ODSVRA staff has monitored California least terns since 1991, and western snowy plover monitoring began in 1992. DPR has undertaken a very large effort to enhance plover and least tern habitat and to protect their nesting sites. To this end, DPR implements a western snowy plover and

California least tern monitoring and management program during the nesting season. This program includes the following elements:

1) Conducting censuses of adult and juvenile birds, locating and monitoring nests, and collecting behavioral observations.
2) Four large exclosures are established before the start of the western snowy plover nesting season (North Grand, Dune Preserve or Arroyo Grande Creek, Milepost 8, and South Riding Boundary). These exclosures are established through placement of interpretive signs and fencing.
3) Individual nest closures are constructed around western snowy plover and California least tern nests found outside of the four large exclosures.

According to recent conversations with USFWS, actual implementation of these habitat management measures differ from what is listed above, due to the changing nature of the habitat being managed. Because snowy plovers do not nest in the same place every year, it is difficult to predict where, and how large, the seasonal exclosures should be. Thus, DPR has varied the location of seasonal exclosures, while maintaining the overall acreage required by USFWS. In order to recognize the variability involved in establishing these exclosures, USFWS is in the process of updating the 1996 Biological Opinion, which is expected to be released in January/February 2001. With the establishment of the proposed TRT, of which the USFWS would be a member, this type of adaptive management would be on-going as we learn more about snowy plover breeding habits.

Surveying is conducted on foot and by vehicle following a routine methodology that includes traversing the habitat along north/south transects. The first priority of breeding season surveys is to locate new nests and determine the status of any nests established in areas where human activities pose the greatest potential for disrupting nesting birds. Factors which are considered when searching for nests are slope and exposure of the beach and dunes, extent and types of vegetation, evidence of potential predators, and the extent and types of human activities. When nests are found, the area around the nest is fenced to prevent vehicles from physically destroying nests and eggs and from causing abandonment of the nesting site due to vehicle operation too close to the nest. When a nest is located in an area exposed to vehicle, pedestrian, or equestrian traffic, the State Parks Radio Communications Center is contacted and a State Park fencing crew is dispatched to meet at the nest site. The surveyor remains near the nest to re-direct traffic from the immediate area, while monitoring the behavior of adult birds, until a nest exclosure can be constructed.

Single nest exclosures are circular with a 10-meter diameter, constructed with 1.8 meter steel stakes placed at 3 meter intervals, and surrounded with 1.2 meter steel roll fencing (with 2 x 4 inch mesh). The bottom of the steel mesh fencing is buried eight inches below grade to prevent predators from encroaching on the nest. These small exclosures are typically constructed by two to three people in less than 30 minutes. Following the construction of an exclosure, the surveyor remains in the area to monitor adult birds to be certain that the fence or staff activities had not disrupted the nesting birds (i.e. until the bird returns to the nest).

Primary concerns of the monitoring program are to locate and protect nests, determine chick survivorship of fledglings, the fledgling to male ratio, and recruitment of fledglings into the breeding

population. The ODSVRA is in the third year of a banding program designed to address these important biological indicators.

A few examples of how adaptive management has played a role in the monitoring and protection of these sensitive species is noted below.

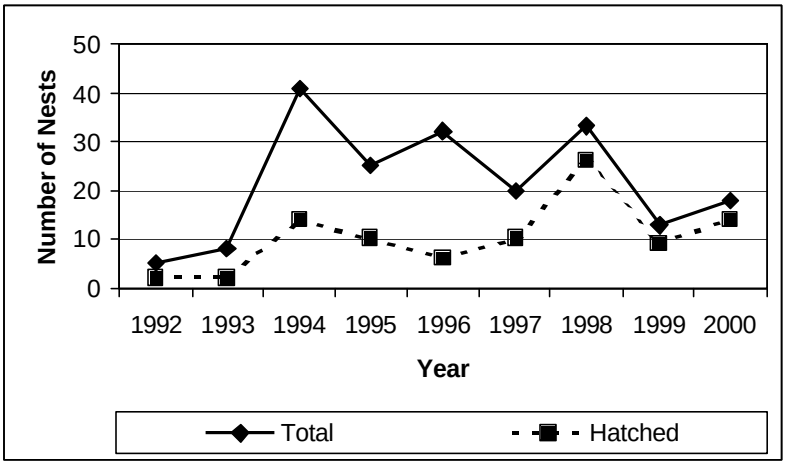
1) In 1998, some California least tern adults fed their fledglings on the Oso Flaco bridge railing. Because the presence of humans on the bridge was disturbing to the birds, the bridge was closed for eight days until the feeding activity ended.
2) In 1999, to reduce nest disturbance, exclosures were posted with signs prohibiting parking and camping within 50' of the exclosures.
3) In 2000, 25 acres were closed when a California least tern brood moved out of the exclosure (posted fencing) erected to protect it.
4) In 2000, park concessionaire employees were trained on specific species identification and critical habitat areas.
5) In 2000, some Western snowy plover chicks moved south after hatching and began to forage. As a result, the wrackline near Milepost 8 was closed to motor vehicles during the 2000 breeding season after having identified this area as important to chick survival.

Overall, DPR concludes that environmentally sensitive habitats are in much better condition than they were in 1982 and that community values are being protected.

Western Snowy Plover

In a 1978 survey, no plovers were found in the ODSVRA and human activity or development had destroyed or rendered potential plover habitat unsuitable. DPR began monitoring western snowy plovers on an annual basis beginning in 1992, and it is not known whether plover surveys were conducted from 1979 to 1991. All data presented in this section of the report was taken from "Breeding Season Facts at Oceano Dunes SVRA" (DPR, June 2000) and cross-referenced with DPR's annual reports on western snowy plover and California least tern breeding results at the ODSVRA, for the years 1994, and 1996-1999 (see Exhibit 9 for list of references).

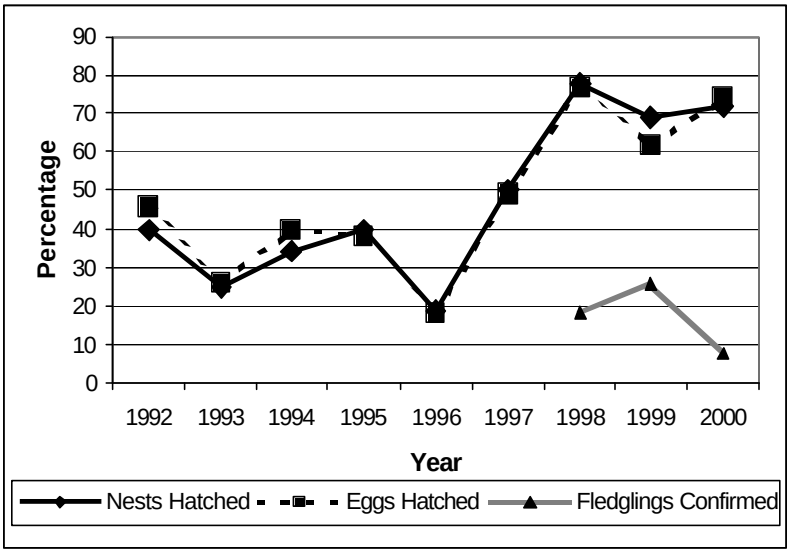
Figure 6 - Western Snowy Plover Nesting Success at ODSVRA



As seen in Figure 6, the number of snowy plover nests found within the ODSVRA has been quite variable over the past nine years. 1992 marks the lowest year in snowy plover nest production, when five nests were found, whereas the most productive year (41 nests found), occurred just two years later in 1994.

The trend in the hatching success of nests (the number of chicks produced by all nests) appears to be somewhat proportional to the number of nests, except for relatively unsuccessful nest hatching noted from 1994 to 1996 (Figure 6). This exception is most likely due to the nests being abandoned or lost to predation. In 1994, 39% of the nests found were lost to either the wind, tide or blowing sand, and in 1995, 44% of the nests were lost due to the same natural forces. In 1996, 25% of the nests were abandoned for the same reasons, and 22% were lost to predation.

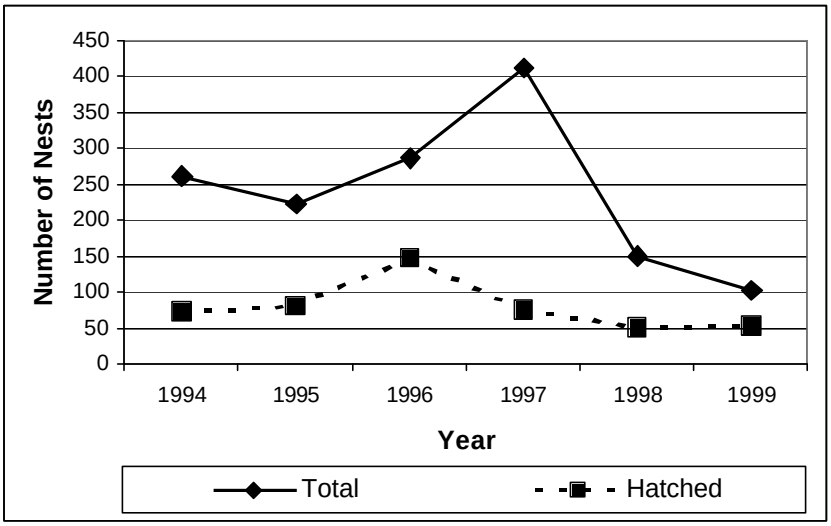
Figure 7 – Western Snowy Plover Nesting, Hatching & Fledgling Success at ODSVRA



Note: Nests Hatched = Percent of nests producing chicks
Eggs Hatched = Percent of eggs producing chicks
Fledgling = A young bird that has acquired its flight feathers

Figure 7 reveals that for the past nine years, the percentage of snowy plover eggs that successfully hatch chicks nearly equals the percentage of snowy plover nests that successfully hatch chicks (this suggests that all nests are equally successful in hatching some chicks, as opposed to a few nests producing all the chicks). However, the confirmed number of fledglings (chicks) in the last three years does not have a similar success rate. For example, in 1998, 78 eggs were produced and 60 of the eggs (77%) successfully hatched chicks. However, only 11 chicks (18%) were confirmed to have fledged out of a total of 60 chicks. This decline in success rate from hatches to fledglings could be due to a number of factors. Perhaps the success rate of hatches is higher than fledglings because the nests are contained within the semi-protective environment of exclosures, whereas, the fledglings are subject to the more dangerous environment outside the exclosures as they forage for food and move south towards Oso Flaco Lake. Because DPR has just begun to band chicks and monitor for fledgling success, it is difficult to chart trends or conclude that the fledgling success rate of the last three years accurately represents what we would expect to see in the future. Although a typical fledgling success rate is not known, it is important to note that even in an undisturbed

Figure 8 – Western Snowy Plover Nesting Success at Vandenberg Air Force Base



environment, a portion of the chicks will not survive due to natural factors. It is estimated that 30-40% of the chicks need to fledge to retain a stable population (Gary Page, Point Reyes Bird Observatory and Recovery Team).

One way to better understand the nesting and fledgling success rates of the snowy plovers and least terns at the ODSVRA is to compare that data to nesting sites in other areas. One such area, is Vandenberg Air Force Base, located approximately twelve miles south of the ODSVRA, in Santa Barbara County. Figure 8 shows the number of nests found and hatched at Vandenberg Air Force Base from 1994 to 1999. Once again, the trend in the hatching success of nests appears to be somewhat proportional to the number of nests, except for a relatively unsuccessful nest hatching in 1997. This is due to one-half of the nests being lost to predators. In other years, the percentage of nests lost to predators ranged from 19% in 1997 and 1999 to 41% in 1998.

Figure 9 shows a comparison of fledglings per nest at Vandenberg Air Force Base and the ODSVRA. This helps illustrate that although the average number of nests found at Vandenberg Air Force Base is more than ten times the number of nests found at the ODSVRA, the number of fledglings per nest (i.e. success rate of chicks) is higher at the ODSVRA.

Figure 9 – W. Snowy Plover Fledgling Success at Vandenberg & ODSVRA

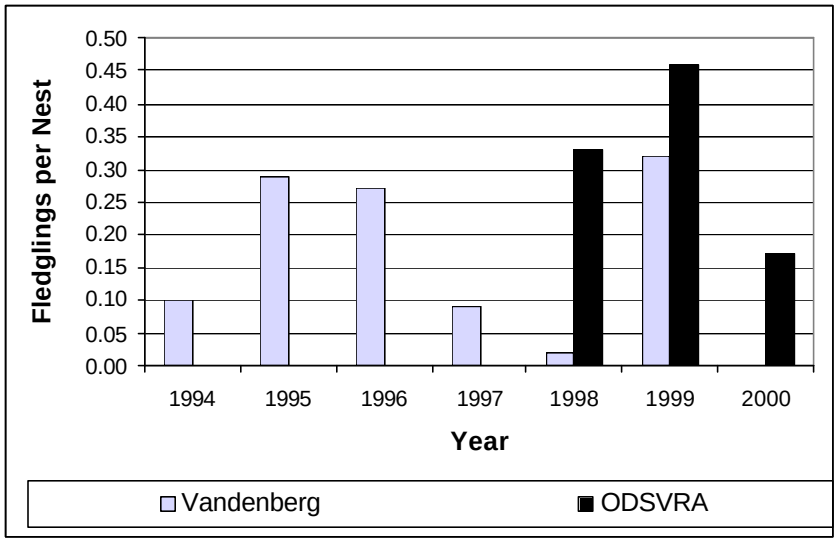
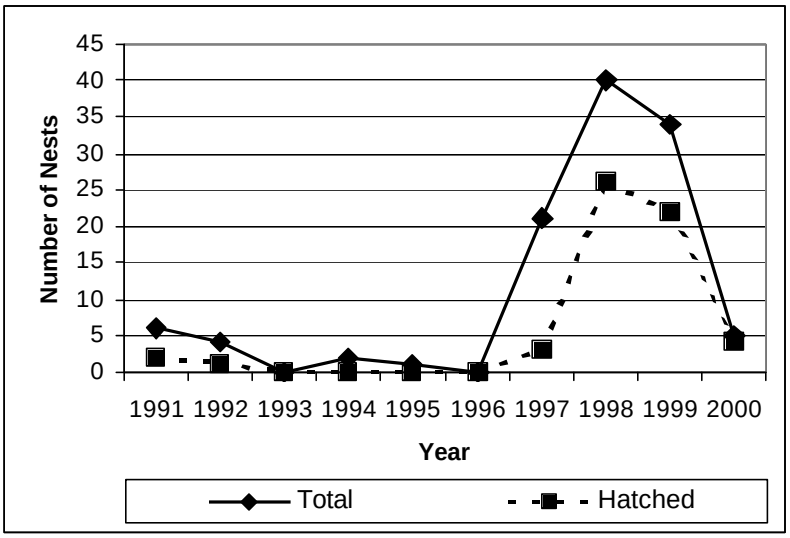


Figure 10 – California Least Tern Nesting Success at ODSVRA



California Least Tern

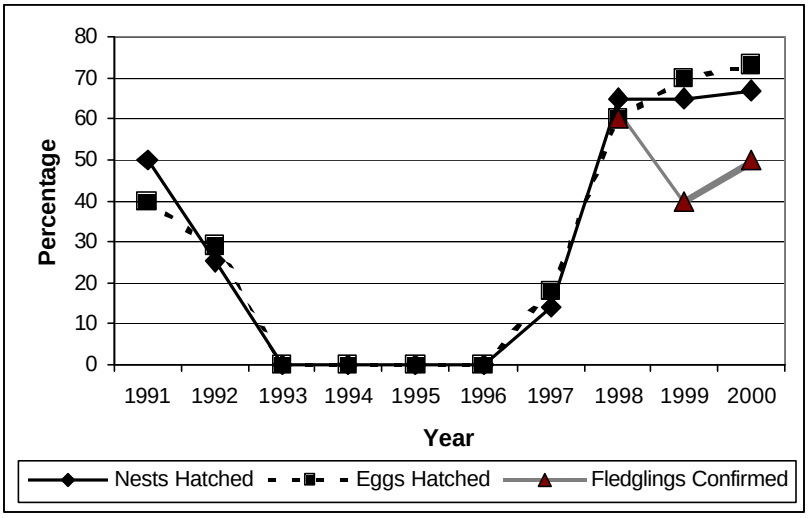
DPR began monitoring California least terns on an annual basis beginning in 1991. As seen in Figure 10, the number of least tern nests found within the ODSVRA has changed quite dramatically between 1996 and 2000. Prior to 1997, an average of two nests were found each year (no breeding occurred in 1993 and 1996). A dramatic increase in the number of nests found is noted initially in 1997 and then

peaks at 40 nests in 1998. In 1999, a downward trend begins slowly and then the number of nests found sharply decreases to just five during the 2000 breeding season.

The trend in the hatching success of nests appears to be somewhat proportional to the number of nests, except for relatively unsuccessful nest hatching noted in 1997. This is most likely due to the nests being abandoned or lost to predation. In 1997, 19% of the nests found were abandoned due to unknown causes and 14% were lost to predation. An additional 52% were lost unknown causes, but predation by coyote is expected.

Figure 11 reveals that the confirmed number of least tern fledglings in the last three years does not appear to have a similar success rate as the number of hatches, although it is difficult to conclude with only three data points. For example, in 1998, 40 least tern nests were found and 26 of them (65%) produced chicks. Sixty-three eggs were produced that season and 38 of the eggs (60%) successfully hatched chicks. Similarly, 24 chicks (60%) were confirmed to have fledged out of a total of 38 chicks. Thus, the 1998 breeding season seems to indicate that the number of hatched nests and eggs, and the number of chicks fledged have similar success rates. However, 1999 does not show such a trend. This indicates that more data is needed to draw conclusions about the trends of fledgling success. Because DPR has just begun to band chicks and monitor for fledgling success, it is difficult to chart trends or conclude that the fledgling success rate of the last three years accurately represents what we would expect to see in the future.

Figure 11 – California Least Tern Nesting, Hatching & Fledgling Success at ODSVRA



Once again, one way to better understand the nesting and fledgling success rates of the snowy plovers and least terns at the ODSVRA is to compare that data to nesting sites in other areas. Figure 12 shows the number of nests found at Vandenberg Air Force Base from 1995 to 1999, and because the number of nests hatched is unknown for 1995 and 1996, only three years of hatching data is presented. Although it is difficult to make conclusions about data with only three points, the trend in the hatching success of nests may be somewhat proportional to the number of nests, except for a relatively unsuccessful nest hatching in 1997. The cause of this low hatching rate is unknown.

Figure 12 – California Least Tern Nesting Success at Vandenberg Air Force Base

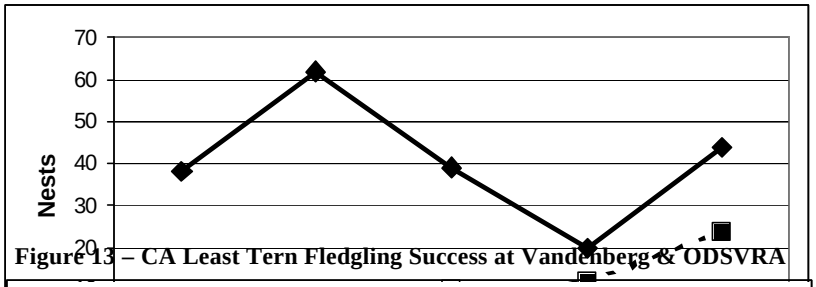


Figure 13 – CA Least Tern Fledgling Success at Vandenberg & ODSVRA

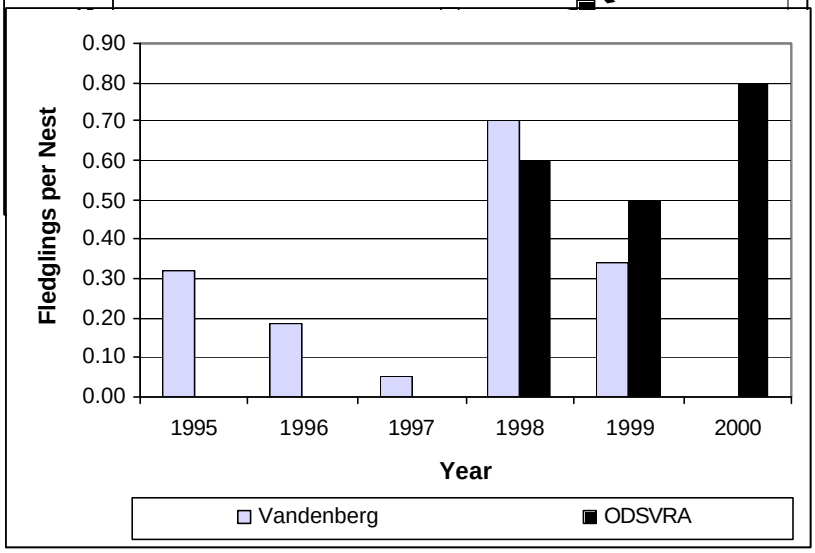


Figure 13 shows a comparison of fledglings per nest at Vandenberg Air Force Base and the ODSVRA. Although there are only two data points to compare, the data suggests that the number of fledglings per nest (i.e. success rate of chicks) is relatively similar at Vandenberg Air Force Base and the ODSVRA.

Potential Impacts to Sensitive Species from Recreational Activities

According to the USFWS 1996 Biological Opinion, vehicle use on the beach and dunes, and the other recreational activities could result in mortality of western snowy plovers and California least terns. Nests that are established outside protected areas could be crushed by vehicles before they are detected or before individual nest exclosures can be constructed. Similarly, recreational activities facilitated by vehicle access to the beach, such as camping, sunbathing, and walking, could directly destroy western snowy plover and California least tern nests before they can be protected. In the Biological Opinion, USFWS offers measures to reduce the likelihood of direct loss from crushing such as increasing, or better distributing through time, efforts to locate and protect nests. In addition, the effectiveness of larger exclosures to minimize nest loss should be evaluated.

California least terns are semi-precocial, are fed by their parents, and fledge in about 22 days. California least tern chicks remain in the nest for a day or two after hatching and then begin to move around the area. Depending on the extent of the protected area around the nest, the location of the nest relative to other protected area, and the behavior of the individual California least tern broods, the exclosures used to protect nests may also afford protection to the chicks. However, monitors at the ODSVRA have observed California least tern chicks outside of protective exclosures in the ride area. According to the Biological Opinion, widespread loss of nesting habitat, introduction and concentration of urban-adapted predators, and disruption of foraging areas are the primary factors contributing to the decline of California least terns. Recovery efforts initially focused on securing nesting sites; however, current recovery efforts emphasize management of the remaining nesting areas, especially with respect to minimizing human induced disturbance and controlling predation on California least tern colonies.

The precocial nature of western snowy plover chicks increases the likelihood, relative to California least tern chicks, that they will be crushed by vehicles using the beach and dunes. Western snowy

plover chicks can leave the nest to forage within a few hours after hatching. Fledging occurs about 31 days after hatching, and broods rarely remain in the immediate vicinity of the nest during that time. As a result, the flightless chicks are likely to leave the confines of protective exclosures rendering them vulnerable to vehicle traffic for most of the period between hatching and fledging. Western snowy plover chicks have been observed in the riding area and one dead chick was found in 1999.

According to the Biological Opinion, the types of recreational activities that could disturb nesting western snowy plovers and California least terns could also disturb brooding western snowy plovers, California least terns, and their chicks. Such harassment could cause or contribute to chick mortality by interfering with essential chick rearing behaviors or by causing intolerable stresses directly to the chicks. For example, disturbance that interferes with foraging could result in the starvation of western snowy plover chicks. Lethal exposure to wind and cold temperatures could result from disturbance that interferes with brooding by western snowy plover and California least tern adults. Potential sources of such disturbance include camping, walking, unleashed dogs, riding of horses, vehicle use, and other recreational activities requiring or facilitated by vehicle access.

California least tern and western snowy plover nest loss could also occur as a result of repeated disturbance of incubating adults. Continued or frequent disturbance could cause nests to be abandoned, or could interfere with incubation such that eggs become buried by sand or fail to hatch because of exposure to cold. Disturbance of incubating western snowy plovers and California least terns could result from vehicle use near nests, and from other types of recreational uses such as camping, sunbathing, and surf fishing.

Thus, even though breeding data for the western snowy plover and California least tern reveals that only one plover and two least terns have been reported (additional take of chicks and adults may go unreported) to be taken directly by a vehicle, many other factors may contribute to the harassment of these sensitive species. If exclosures are not large enough, or do not provide adequate, contiguous nesting and foraging area, the breeding success may decline and thus, their chances for survival are diminished.
In addition, the recreational use of the ODSVRA facilitated by vehicle access could increase the number of scavenging species that also prey on western snowy plover and California least tern nests. For example, trash left on the beach could attract American crows, gulls, coyotes, and other opportunistic predators. Increased use of the beach by such predators would be expected to increase the predation pressure on nesting California least terns and western snowy plovers. The ODSVRA reduces this threat by requiring all campers to pack out their trash, providing covered trash receptacles, and by picking up trash left on the beach.

Biologists studying western snowy plovers and piping plovers, a behaviorally and ecologically similar species found on the east coast, have noted that adults of these species appear to be unresponsive to approaching vehicles until the vehicles are almost upon the plover (Persons 1995, Flemming 1988). The lack of flight response to oncoming vehicles may increase the risk that western snowy plovers will be struck by or crushed by vehicles, especially vehicles moving at faster speeds. According to the Biological Opinion, a common response of both western snowy plover and California least tern chicks to threat or disturbance is to stand or lie motionless on the sand. This

behavior, combined with the cryptic coloration of the chicks, can render avoidance difficult. People moving through habitat quickly, such as vehicle drivers, or individuals untrained and unpracticed in detecting the chicks of these species, are unlikely to see and avoid running over or stepping on California least tern and western snowy plover chicks. As a result, chicks within areas open to recreation use could be crushed. Snowy plovers may also become trapped in tire tracks that could reduce the opportunity to escape threats.

In the Biological Opinion, USFWS states that they are not aware of any information regarding the response of adult western snowy plovers to vehicles at night. However, in 1993 two adult western snowy plovers were crushed by all-terrain vehicles conducting safety patrols at night on the beaches of Vandenberg Air Force Base. Adult California least terns are expected to flush in response to oncoming vehicles; thus, the risk of direct injury or mortality from collisions with vehicles is likely to be low. USFWS mentions that one measure available to reduce the risk of vehicles striking or running over adult western snowy plovers is the establishment and enforcement of speed limits. A speed limit of 15 MPH is currently in effect for portions of the ODSVRA.

The locations where western snowy plover chicks forage at the ODSVRA are not known. However, the USFWS' observations of western snowy plover chicks in other areas of their range indicate that they are frequently, and may prefer to, forage on the invertebrates associated with the surf-cast kelp along the wrack line. None of the protected areas within the ODSVRA encompass this type of habitat, and the portion of the wrack line that is partially protected (south of the ride area but open to other types of recreational use) is not contiguous with any of the larger exclosures. Consequently, western snowy plovers and their chicks must traverse areas subject to recreational vehicle use to reach this habitat, and remain vulnerable to traffic while foraging.

Vehicle use outside of the ride area could have many of the same impacts on western snowy plovers and California least terns as vehicle use within the ride area. These adverse effects include destruction of nests, interference with incubation, running over chicks and adults, disturbing brooding and foraging behaviors, and disturbing energetically stressed western snowy plovers. These impacts are described in more detail above. Measures are available to avoid most of these impacts and to minimize those that remain. These measures include restricting vehicles to the hard-packed wet sand, or as close as possible to the hard-packed wet sand during high tides, enforcing the speed limit, and ensuring that all personnel driving vehicles are trained to recognize and avoid western snowy plovers. These, and other alternative management measures are discussed in further detail below.

Expected Take of Western Snowy Plovers and California Least Terns

In the Biological Opinion, the USFWS states that they anticipate the following forms of take in association with vehicle use or recreational activities at the ODSVRA:

1) Three (3) western snowy plover nests per year, including all eggs therein, in the form of direct mortality through crushing as a result of vehicle use or recreational activities, or in the form of indirect mortality through abandonment, inadequate incubation, or burial by sand as a result of disturbance associated with vehicle use or recreational activities.

2) Three (3) western snowy plover chicks per year in the form of direct mortality through crushing as a result of vehicle use or recreational activities.

3) One (1) western snowy plover adult per year in the form of direct mortality through crushing as a result of vehicle use or recreational activities.

4) All western snowy plover broods and the attending adults in the form of harassment by flushing broods out of suitable habitat, by interfering with foraging, or by interfering with distraction behaviors or other essential chick rearing behaviors.

5) One (1) California least tern nest per year, including all eggs therein, in the form of direct mortality through crushing as a result of vehicle use or recreational activities, or in the form of indirect mortality through abandonment, inadequate incubation, or burial by sand as a result of disturbance associated with vehicle use or recreational activities.

6) One (1) California least tern chick or adult per year in the form of direct mortality through crushing as a result of vehicle use or recreational activities.

7) One (1) California least tern brood and the attending adults per year when total nests equal five or less, or two (2) broods and the attending adults per year when the total nests equal six or more, in the form of harassment by flushing broods out of suitable habitat, by interfering with foraging, or by interfering with defensive behaviors or other essential chick rearing behaviors.

In one year, the USFWS anticipates that a total of one snowy plover adult, one California least tern chick or adult, three snowy plover chicks, one least tern nest (affecting a maximum of three eggs), and three snowy plover nests (affecting a maximum of nine eggs) will be lost due to vehicle use or recreational activities on the beach. In addition, one or two least tern broods and *all* western snowy plover broods will be "harassed" by being flushed out of suitable habitat, and having their foraging and essential chick rearing behaviors disturbed due to activities within the ODSVRA. Although reported breeding data is inconclusive concerning whether the USFWS' amount of anticipated "take" is actually realized, the USFWS clearly acknowledges, through these statements in the Biological Opinion, that current activities (vehicle use and other recreational activities) in the ODSVRA may result in take and harassment of these listed species.

Overall, while it is generally understood by biologists that OHV activity is generally impacting sensitive species, no specific data correlation has been made between levels of recreational activity and resource impacts. Further systematic monitoring and analysis is therefore needed to draw more firm conclusions.

6. Alternatives for Habitat Conservation & Management

Technical Review Team

DPR has proposed, and the San Luis Obispo County Board of Supervisors endorses (see Exhibit 6 for the Board of Supervisors Resolution), the formation of a Technical Review Team (TRT) to assist the Superintendent of the ODVSRA with on-going park management. Rather than rely on a fixed number for day and overnight use, the TRT would be part of an adaptive management process that oversees

on-going monitoring of both environmental and use trends in the Park for the purpose of supporting decision-making about such things as total day and overnight use in the park. Such a process would allow for adjustments, based on what we learn over time, in not only allowable use limits, but other critical management concerns of the park as well. Sometimes referred to as adaptive management, this approach provides a procedural framework for responding to changing environmental conditions and increases the overall success of management activities.

Adaptive Management. Adaptive management is a systematic process for continually improving management policies and practices as new information is gathered through on-going study and monitoring of implementation. This approach to resource management allows participants to accommodate the uncertainty and complexity of overall ecosystem management, while improving our understanding of ecosystem responses, thresholds and dynamics. It may not always be completely clear how to achieve given objectives, but throughout the management process, reliable feedback may be gained about the effectiveness of alternative policies and practices.
In the case of Ocean Dunes, it is clear that we have learned a great deal about dune systems, habitats, and sensitive dunes species since the original permit that led to the fencing of vegetated areas. In addition, while the Carrying Capacity Study provides significant environmental baseline data, this data also highlights the importance of continuing such data collection and monitoring to provide for on-going assessment of management actions, planning, etc. to address changing circumstances in the ODSVRA environment. These questions, though, are not necessarily addressed through the establishment of, and reliance on, a static carrying capacity number except inasmuch as this number is understood to be appropriate in light of current information. To the extent that the overall intensity of use is a known factor in creating environmental impacts, resource managers need to be able to adjust this intensity as more information becomes available and we continue to gain a better understanding of the complex system in which we are working.

Adaptive management also allows for more subtle and comprehensive environmental management by focusing on early identification of undesirable trends and providing the guidance, through experimentation, necessary to determine the appropriate remedial action to reverse an undesirable trend. For example, Commission staff have identified a number of issues of particular importance as potential initial tasks of an adaptive management approach. Such environmental management issues for the ODSVRA are not addressed by the simple mechanism of establishing a carrying capacity number.

Due to the varied nature and complexity of these factors, the scientific community's level of understanding is in a continual state of growth and refinement. Similarly, the techniques utilized to monitor the "health" of an ecosystem are typically complex, not necessarily standardized and are also in a continual state of refinement. Therefore, an adaptive management approach will allow for the application of a broad range of scientifically accepted techniques and measures which are appropriate for the unique habitats found within the ODSVRA. The difficulty in relying on an ecological carrying capacity analysis is that environmental systems are dynamic, and often comprise multiple and related subsystems. In other words, the system that is being analyzed for sustainability is a moving target. For example, as previously discussed the Oceano Dunes complex is actually composed of at least four major and distinct ecological systems (habitats) that, over time, have fluctuated depending on various ecological and human disturbances. These characteristics lead to considerable uncertainty about

appropriate management actions. In addition, managers often face uncertainty about appropriate regulatory actions because understanding of biological mechanisms is limited. Therefore, it is appropriate to explicitly admit that uncertainty exists and take actions in an experimentally designed context to learn which actions are better than those currently in use.

Overall, adaptive management appears to be very appropriate in this particular regulatory situation. Rather than only establishing a specific limit of users within the park, adaptive management leaves open the possibility for subsequent changes to data collection, program evaluation, and management reaction as new information is discovered over the long-term. Although interim vehicle limits should be established as a baseline for future analysis, any changes in use limitations would follow from this on-going systematic monitoring and management approach. More generally, Commission participation in an on-going adaptive management approach will allow for better balancing between the Public Access, Recreation, and Environmentally Sensitive Habitat Policies of the Coastal Act over time rather than through more limited permit decisions. Finally, adaptive management through something like a TRT more appropriately recognizes that the recreational uses of the ODSVRA are established by state legislation, and that the management challenge is how to balance this legislatively sanctioned activity with on-going and dynamic environmental management concerns.

Establishment of a Technical Review Team. The purpose of the TRT is to assemble a group of stakeholders who will actively participate in the adaptive management process and provide recommendations to the Superintendent of the ODSVRA (Superintendent). The TRT will assist the ODSVRA Superintendent in the protection of the SVRA natural resources by helping identify and review needed research and recommend management measures and restoration efforts to rebuild or protect the ODSVRA resources. To this end, DPR will commit to use, absent compelling reasons, the recommendations made by the TRT.

As proposed, the TRT will be composed of members employed by Federal, State, or local agencies with expertise in management of natural resources, representatives of local user groups, conservation and other public interest organizations, scientific and educational organizations, and members of the public interested in the protection and multiple use management of the ODSVRA resources. DPR also proposes to add members or make adjustments to the make-up of the TRT in order to reflect a balance of interests or to reflect changing dynamics of stakeholders and/or issues.

In addition, a scientific subcommittee will be created to identify, develop and evaluate the scientific information needed by decision-makers to ensure that the ODSVRA's natural resources are adequately managed and protected. The subcommittee will be composed of TRT members from the five government agencies (CCC, SLO County, USFWS, DFG, DPR), and at least two independent scientists with expertise in Western snowy plover, California least tern, steelhead trout or other species of concern, as well as ecological pocesses, to analyze technical data and ensure that conclusions regarding technical studies are impartial. ~~will be created to ensure that data analysis and conclusions regarding technical studies are impartial, in order to provide the TRT with expert scientific recommendations~~. An important task of the scientific subcommittee will be to make management recommendations to the TRT based upon the scientific information that is reviewed by the scientific subcommittee. The ~~remaining four members of the~~ TRT~~, along with the scientific~~

~~subcommittee,~~ will then use that information to make recommendations to the Superintendent of the ODSVRA.

Tasks of the TRT. It is anticipated that the TRT will meet at least twice a year and maintain correspondence in order to evaluate monitoring results at the ODSVRA. It will also reevaluate monitoring protocols, develop recommendations to DPR regarding additional monitoring focuses and management strategies, provide oversight review for the various research studies, and assist DPR in the development of annual reports. In addition, based on the results of ongoing research studies, the TRT will advise the ODSVRA Superintendent regarding changes in the limits of day use and overnight camping in the park.

As mentioned, issues of particular importance have been identified as potential initial tasks of the TRT. These include but may not be limited to 1) evaluating the location and size of single nest and seasonal exclosures; 2) completing a shorebird impacts study; 3) establishing a study plot for research on successional events in dune stabilization; 4) assessing motor vehicle fluids contamination; 5) initiating an Arroyo Grand Creek vehicle crossing study; 6) improving the retrophoto baseline archive; and 7) studying the response of western snowy plovers and California least terns to vehicle activity at night. It should be noted, however, that the TRT may also identify and initiate the investigation of other issues reasonably related to the carrying capacity and ongoing management of the SVRA.

To address the issue of resource management, the dynamics of the different ecosystems that are present at ODSVRA must be recognized. One logical task for the Technical Review Team is to become familiar with the four main categories of natural resource areas (systems) in the ODSVRA and answer the following related questions raised as a result of the completion of the Carrying Capacity Study. These four categories are; 1) the ocean, especially the intertidal (wet) beach which is home to the Pismo clam and other species, as well as a feeding area for various shorebirds and a possible breeding area for grunion on certain high tide nights; 2) the barren sand areas, including the dry sand beach and adjacent barren dunes, which are either devoid of vegetation (or nearly so), are used by the endangered Snowy plover for nesting; 3) the vegetated dunes, generally located further from the shoreline; and, 4) freshwater streams and ponds. Each of these ecosystems interacts with its neighbors. The following is a more detailed consideration of these different natural resource systems found at ODSVRA:

1a. Wet Beach (clams and other infaunal organisms). Although no specific data has been found, there does not appear to be any evidence that OHVs are directly impacting clams and other subsurface beach dwellers. OHVs do make it easy for clam diggers to access the beach, so it would be logical that there is an indirect impact from increased take of the resource. The allowable take is explicitly regulated by the California Department of Fish and Game and no issue of overuse of this resource has been raised with respect to OHV use levels. Nonetheless, future research with respect to compaction, petrochemical contamination, reproductive success, growth rates, etc., would be appropriate.

1b. Wet Beach (shorebirds). As a feeding area for shorebirds, considerable disruption is possible whenever vehicles cruise along the water's edge close enough to make the birds move away or take flight. The result (we can presume) is similar to what happens when there is intense use by

pedestrians, equestrians cantering in the surf run-up, or dogs chasing the birds. That is, less feeding success due to less time on the surface and a greater drain on the bird's energy reserves from having to run away or take flight frequently. Together these effects are said to "stress" the impacted species.

To learn more about the potential relationship between the intensity or type of use at the ODSVRA and the bird foraging function of the wet beach, the TRT should investigate:

1) How often does OHV activity stress the resident shorebird population, as compared to similar non-OHV recreational beaches?
2) Are wildlife population balances being upset by the presence of OHVs? Are there particularly skittish species which flee, resulting in overcrowding by another, more tolerant species such as gulls?
3) Are there direct impacts on food supply attributable to OHVs running on the wet beach, such as from vibrations or trace hydrocarbon residues?
4) Are there indirect impacts on food supply attributable to OHV activity, such as competition from crows or gulls which are attracted to left-behind picnic scraps?
5) Is the level of disruption attributable to OHV activity significant? Is there evidence of the local populations of any of the shorebirds naturally occurring at this beach being placed in jeopardy?
6) If there is a significant local disruption, is it also significant in terms of cumulative impacts over the whole system? (Which, in this case, could be considered the entire wet beach from Pismo Beach to Point Sal)
7) If there are significant impacts to the system, are there available mitigation measures which could reduce the impacts to a less than significant level?
8) If the appropriate mitigation measures include testing a reduced OHV use level, what level would be appropriate to test? (Such reduction should be, at a minimum, statistically significant, in the mathematical sense.)

1c. Wet Beach – Grunion. According to the California Department of Fish and Game, grunion runs occur in the Pismo Beach area. These small fish utilize the wet beach to lay their eggs. Important questions for the TRT to address are; 1) Will their nests (if any) be smashed by day-time OHV use? 2) If so, would this be a significant impact? 3) Can such impacts be mitigated by banning driving on the wet beach after a grunion run? 4) And, would this be practical to enforce?

1d. Wet Beach – Summary. Only generalized concerns have been raised regarding the wet beach ecosystem. No information is available that demonstrates that marine resources or ESHAs are at risk from OHV activity. Nonetheless, further study is warranted because of the possibility of cumulative adverse effects on this portion of the marine environment. Accordingly, staff is recommending that the TRT undertake wet beach-specific studies regarding clams and other resident fauna; shorebird activities; grunion runs; and an assessment of impacts from motor vehicle fluids.

2a. Barren Sand – Western Snowy plover Habitat. The barren sand ecosystem is comprised of dry sandy beach and dunes with sparse or no vegetation. This is a dynamic system that is characterized by a high level of natural disturbance. Here is where the western snowy plover makes its nest on bare sand. Loss of suitable breeding habitat has contributed to the decline of the species, such that it is a Federally-listed threatened species. Accordingly, known western snowy plover breeding habitats are considered to be environmentally sensitive habitat areas (ESHAs). The bare sand portions of the plover's habitat also happen to (otherwise) be the most tolerant and suitable for intensive recreational use.

The problem is not the absence of bare sand areas, but that too many bare sand areas have been made unsuitable. For example, observations on the Monterey Bay shoreline reveal visitors approaching too closely to the difficult-to-see nests (frightening the parent bird off the eggs and exposing the eggs to gull predation); harassment by domestic dogs running unleashed on the beach; and direct predation by introduced red foxes. At Oceano Dunes, an additional element of stress is added by OHV activity, including noise and vibration. Also, young plover chicks have been reported to take shelter in the minimal (but only available) shade offered by the wheel tracks of an OHV. Of course, this places them in jeopardy of being hit by a following OHV. (Despite the apparent hazard, there is no significant reported evidence of plover chick mortality from this cause).

The number of snowy plover nests have increased from none in 1978 to an annual average of 22 nests in the last nine years (it is unclear as to whether plovers studies were conducted from 1979 to 1991). Because the plover is holding its own or increasing at ODSVRA, one can assume that the current management measures adopted by DPR are effective at some level. DPR concludes that the present levels of OHV activity do not represent a significant disruption of snowy plover habitat.

2b. Barren Sand – Other. No significant plant or animal habitats are readily evident on the majority of bare sand areas at ODSVRA. Nonetheless, a closer look will reveal evidence of insect activity, vertebrate and invertebrate insect predators, wind-blown seeds and other evidence of biologic activity. Thin strands of plant life are sporadically present only as native "pioneer" species, or remnants of introduced exotics such as European dune grass and South African iceplant.

Information is lacking regarding what characteristics the dunes would have without OHVs. We do not have the information necessary to adequately assess recreational impacts “from scratch,” that is, by describing first a dunes ecosystem without OHV use and then analyzing the impacts of OHV use on the previously OHV-free dunes ecosystem. Although sensitive sites marked by vegetation and identified as active plover and tern nesting areas have been fenced, sites that may have held sensitive resources prior to 1982 (the date of the first fencing of sensitive sites) have been degraded, and fencing may not preclude off-highway vehicle operators from attempting to enter sensitive sites. Experience here and in other coastal dune systems demonstrates that native (or exotic) dune plants will revegetate those areas where OHV impacts are eliminated. In other words, from a biological perspective, the dunes represent a single habitat type -- the “sensitive areas” exist because of exclusionary fencing, not some special natural characteristic.

Thus, it is critical that the TRT evaluate past revegetation efforts both inside and outside the ODSVRA and the feasibility of expanding vegetation exclosures, and monitor the ability of barren dunes to revegetate if given the chance (i.e. OHV impacts are eliminated).

For many years, residential development along Strand Avenue (located north of Arroyo Grande Creek) has been inundated by blowing sand. Large amounts of sand are deposited on the beach by wave action in the spring and summer months, and during the summer and fall, wind blows the sand landward creating dunes that advance toward the houses and grow vertically. In the past, the homeowners have obtained emergency permits from either the County or the Commission (a portion of the neighborhood lies within the Commission's retained permit jurisdiction) to stabilize the dunes by relocating the sand, via heavy equipment, to the inter-tidal zone.

In 1993, the Commission staff asked the residential community to explore alternative means of addressing the drifting sand; a vegetation program was one of the options discussed. Since then, DPR has placed vegetation on the state park property in front of the homes between Pier Avenue and Surf Avenue. The presence of vegetation has greatly reduced the need for sand maintenance in this area; however, it currently covers only the northern half of the dunes. In 1999, the Commission issued an emergency permit for the relocation of between 1,000 and 4,00 cubic yards of sand seaward of the homes. The related follow-up coastal development permit is pending further application information and coordination among the Oceano Homeowners Beach Maintenance Committee.

Several approaches to address dune management and stabilization in this area have been discussed in the past; however, to date, consensus among the homeowners has not been reached. The homeowners wish to retain the sandy beach, as it is enjoyed by large numbers of the general public and the homeowners themselves for recreational activities; however, it potentially poses a risk to their life and property. DPR has expressed a willingness to work with the USFWS, San Luis Obispo County, and the Commission to establish a dune management and stabilization approach on their properties if there is consensus between the agencies and the homeowners. The TRT may play an important role in developing a dune management plan for this area.

3. Vegetated Dunes. This dynamic ecosystem is characterized by significant levels of natural disturbance (wind, moving sand) such that specially-adapted dune species have a competitive advantage over the typical coastal bluff flora found along the central coast of California. These dune systems along California's central coast which are naturally stabilized by native vegetation are generally recognized as ESHAs. While native dune plants are adapted to (and may actually require) disturbance at some level, they are vulnerable to trampling and crushing during the growing season. A single pass by an OHV can leave tracks -- and a disturbed site susceptible to wind erosion -- that will persist for the rest of the year.

As the native (or introduced) dune plants grow, their root systems tend to hold the sand together, providing resistance to wind erosion. Further plant growth attracts plant eaters, particularly rodents and rabbits. These animals in turn attract predators such as hawks and grey foxes. Animal droppings, and the remains of dead plants and animals provide more nutrients, thus leading in successional stages to increasingly more vegetated and stable dunes.

Dune plants also cause wind velocities at the immediate surface to be reduced, acting as miniature "windbreaks." This causes the wind to drop its load of sand grains; the amount of sand that a given gust of wind can bounce along the dune surface is proportional to the velocity of the wind. Thus, any object which reduces wind energy results in dune building. Put another way, plant cover builds higher dunes.

4. Freshwater Ponds and Streams. A number of unusual freshwater lakes and marshes occur along the inland side of this dune formation, which include the relatively large Oso Flaco Lake. All of these wetlands have been made off-limits to OHVs. In addition, Arroyo Grande Creek runs through the ODSVRA and empties into the ocean across the beach. Thus, the creek must be forded by all OHVs headed south of this point. It is not clear what the relationship is between the intensity of use at the ODSVRA and the impacts on the stream ecosystem. Thus, a better understanding of potential cumulative effects is needed, especially with respect to petrochemical contamination.

Equilibrium Between Barren and Vegetatively Stabilized Dunes. At the ODSVRA, there appears to have historically been areas of both naturally barren and naturally vegetated dunes. The proposed levels of OHV use on the barren dunes will discourage establishment of pioneer plants and eliminate any likelihood of crust formation and other successional events which would lead to loss of bare sand areas. On the other hand, beyond the fences on the vegetated dunes, there is complete protection from OHV disturbance (and only minimal passive recreational use and animal disturbance).

This situation is dependent on having enough management measures in place to assure that OHV use is confined to the existing barren sand areas. If for example the OHV-user educational program were to fall short, if the fences were to fall into disrepair, or if the ranger patrol forces were cut back, OHV exclusion from the vegetated part of the dune system could no longer be counted on. Even a small number of "outlaw" OHVs could, with continuous activity, threaten the sustainability of this ESHA.

The separation of uses is absolutely critical to the capacity of the barren portion of the dune system to co-exist with the vegetated portion of the dune system. The capacity of the barren dunes to sustain motorized recreational disturbance is very great. The capacity of the (naturally) vegetated dunes to sustain motorized recreational disturbance is very small. The precise historic extent of the bare sand areas is not known, but appears to have been extensive. What is known is that excessive disturbance will increase the proportion of bare sand at the expense of habitat suitable for native dune plants. Formerly vegetated areas that were made barren through excessively concentrated recreational use, including OHVs, equestrians, and pedestrians, have recovered nicely once they are fenced and restored. This may be possible in currently unvegetated areas if fenced exclosures were expanded. Thus, establishing and studying various test plots of fenced barren dunes is recommended as a task of the TRT. On the other hand, through artificial stabilization, especially through planting of (highly undesirable) European dune grass, the area of bare dunes could theoretically be greatly increased. However, in accepting continued substantial OHV use on part of the dune system, we are perpetuating (and probably emphasizing the distinction between) two distinct subsystems.

It is believed that a dynamic equilibrium once existed between the barren dunes and the vegetated dunes. That equilibrium was upset through the introduction of artificial stabilization (planting of

European dune grass), and then again in the other direction by extensive OHV activity extending into naturally vegetated areas. In recognition that the new equilibrium requires an attentive, adaptive management effort in order for it to be sustained, the TRT is encouraged to ensure that: 1) the historic photographic record be found, protected and analyzed, in order to better understand long-term trends especially as they concern the equilibrium between barren and vegetated areas; 2) research test plots be established, to better understand actual OHV impacts on the successional process; and, 3) that the interim vehicle limits be reduced proportionately in the event that management capability is reduced (e.g., because of a budget reduction) or that natural resources are being degraded.

Proposed Interim Vehicle Limits

As discussed previously, DPR has proposed an interim limit on vehicle day-use of 4,300 per day, including OHVs, and an interim limit of 1,000 overnight camping units. This proposal reflects the current vehicle use limits of the ODSVRA. The SVRA's General Plan of 1975 identified the carrying capacity of the Park to be 4,300 day-use vehicles, and given the improvements in enhancement and management of environmentally sensitive habitats, DPR believes it can manage this intensity of use without significant degradation of coastal resources.

DPR also proposes that an allowance be made for day-use vehicle limits to exceed 4,300 only during the four major holiday periods of Memorial Day, July 4th, Labor Day, and Thanksgiving, on an interim basis, in order to allow historic use patterns during busy holiday periods. These "bump days" would be in effect for an initial three year period to allow for comprehensive monitoring and comparative analysis of historical levels of visitor uses and impacts during these highest attendance periods. This proposal is consistent with the County of San Luis Obispo Board of Supervisors Resolution No. 98-355, attached as Exhibit 6.

Other Management Alternatives

In the critical habitat designation for the western snowy plover and the 1996 Biological Opinion, USFWS points out the potential for vehicles and other recreational activities to cause direct take or harassment of snowy plovers and least terns. Specifically, the USFWS' report on critical habitat designation states that, "activities that could aversely affect critical habitat of the…western snowy plover…include, but are not limited to: projects or management activities that cause, induce, or increase human-associated disturbance on beaches, including operation of off-road vehicles (ORVs) on the beach…".

In addition, and as previously mentioned, the USFWS expects a certain amount of "take" and "harassment" to occur among western snowy plovers and California least terns within the ODSVRA. In one year, the USFWS anticipates that a total of one snowy plover adult, one California least tern chick or adult, three snowy plover chicks, one least tern nest (affecting a maximum of three eggs), and three snowy plover nests (affecting a maximum of nine eggs) will be lost due to vehicle use or recreational activities on the beach. In addition, the Biological Opinion states that one or two least tern broods and *all* western snowy plover broods will be "harassed" by being flushed out of suitable habitat, and having their foraging and essential chick rearing behaviors disturbed, due to activities within the ODSVRA. Although breeding data is inconclusive that the USFWS' amount of anticipated "take" is actually realized, the USFWS clearly acknowledges, through these statements in the

Biological Opinion, that current activities (vehicle use and other recreational activities) in the ODSVRA may result in take and harassment of these listed species.

In order to further efforts for conservation of western snowy plovers and California least terns, the USFWS recommended in the Biological Opinion that the following measures be implemented, or continued, at the ODSVRA. Most, if not all, of these measures should be reviewed and considered by the TRT for future management action.

1) ODSVRA should continue the ongoing public education and interpretation program, which includes the distribution of educational materials, placement of interpretive signs, and outreach to the surrounding community and user groups.
2) ODSVRA vehicles used for routine enforcement and management activities outside of the ride area shall be restricted to the hard-packed wet sand, or shall stay as close to the wet sand as possible during high tides, and shall avoid the wrack line if possible.
3) All ODSVRA personnel engaged in activities within or outside the ride area shall be trained to recognize California least tern and western snowy plover adults and chicks, and shall be provided with instruction regarding the measures implemented by the ODSVRA to protect these species.
4) The ODSVRA should expand efforts to conserve nesting western snowy plovers and California least terns by increasing the size and numbers of areas in which recreational activities are prohibited during the nesting season. The increases in protected areas that should be considered include the following:
    a) Expansion of the North Grand, Dune Preserve, and Milepost 8 exclosures to the water;
    b) Expansion of the Milepost 8 exclosure to be contiguous with the South Riding Boundary exclosure and the protected area south of the riding area;
    c) Expansion of the Dune Preserve exclosure to the southern boundary of the Dune Preserve and to include an equal area of Arroyo Grande Creek;
    d) Establishment of one or more additional exclosures north of Pier Avenue; and
    e) Maintenance of exclosures throughout the year to provide undisturbed areas for migrating and wintering western snowy plovers.

It is important to note that the USFWS is currently working on an update to their 1996 Biological Opinion, in which an analysis will be completed to determine the appropriate locations for seasonal exclosures as they relate to historic snowy plover nesting areas. This update will play a critical role in determining whether the current location and size of seasonal exclosures are adequate for the continued protection of sensitive nesting habitat. In addition to the USFWS' pending recommendations, and in an effort to protect the area with the largest concentration of snowy plover nesting sites (illustrated in Exhibit 5), the Commission finds that the seasonal exclosure near Milepost 8 shall be expanded to the north and south (contiguous with the South Riding Boundary) and shall extend to the water (illustrated in Exhibit 12). This expanded exclosure area is consistent with above USFWS recommendations (4a and b) and will serve as a control area large enough to effectively study the potential impacts of recreational activities on Western snowy plovers.

In addition, staff recommends that the TRT consider the following alternative management measures:

1) Limiting all street-legal vehicle travel to the hard-packed wet sand in the area between the Park entrances and the OHV riding area;
2) Increasing the size of single nest exclosures;
3) Constructing single nest exclosures to be contiguous with adjacent single nest or seasonal exclosures, and expand all exclosures to the water;

In order to better understand what other management and conservation alternatives may be available for the ODSVRA, it is important to consider how the protection of western snowy plover habitat has been addressed in other areas. Two such case studies are Vandenberg Air Force base and Wilder Ranch.

Vandenberg Air Force Base, Santa Barbara County. The beaches of Vandenberg Air Force Base are a historic nesting site for western snowy plover and California least terns, and have been designated as critical habitat for the western snowy plover. In 1995, the U.S. Air Force proposed a one-year "linear" closure of the beaches at Vandenberg Air Force Base during the western snowy plover's nesting season. In 1999, after monitoring results indicated decreasing plover nesting success, the USFWS recommended an immediate emergency closure of three miles of publicly accessible beaches where the greatest concentrations of plover nesting occurs. USFWS noted that a four-year study of monitoring data concluded that reproductive success of western snowy plovers on these beaches was "substantially lower in the areas with linear exclosures than in areas that were fully closed." After reviewing the monitoring data and adopting formal "critical habitat" designations for the plover, the USFWS recommended that all beaches where plovers nest be fully closed during the nesting season. In March 2000, the Commission found that the U.S. Air Force's proposal to "increase interim restrictions on public access at beaches where snowy plovers nest on Vandenberg Air Forces Base" was consistent with the Coastal Act.

Wilder Ranch, Santa Cruz County. Wilder Ranch is a small pocket beach on the coast of northern Santa Cruz County, which has been known as a western snowy plover nesting site since 1922 and is designated as critical habitat for the plover. During the period of 1989-1993, the number of chicks fledged from Wilder Ranch steadily declined from 18 in 1989 to none in 1993. In 1994, State Parks increased efforts to provide protection for the preserve. This included fencing, improved signing, ranger patrols, and volunteer docents to inform park visitors of the closed and protected status of the preserve. These efforts successfully resulted in a very substantial reduction in the level of human disturbance at the natural preserve, including the beach. In 1994, a total of 13 nests were found at Wilder Ranch, reversing a steadily declining trend for the preceding five years that saw numbers fall from 18 nests (1989) to no nests (1993).

Both the Vandenberg Air Force Base and Wilder Ranch case studies indicate that snowy plover habitat and nesting success may improve if recreational access to the ODSVRA were further restricted. It may be that only portions of the Park would need to be further restricted, or closed,

during the nesting seasons in order to reduce adverse human impacts on breeding success. In the event that the ODSVRA were subject to further restrictions, the TRT would be involved in determining what portion of the ODSVRA should be restricted and the length of time the restriction should be in effect.

7. Consistency Analysis

DPR has proposed an interim limit on vehicle day-use of 4,300 per day, including OHVs, and an interim limit of 1,000 overnight camping units. This proposal reflects the current vehicle use limits of the ODSVRA. DPR is also proposing that an allowance be made for day-use vehicle limits to exceed 4,300 on the four major holiday weekends (Memorial Day, July 4th, Labor Day, and Thanksgiving).

An analysis completed for the 1975 State Park General Plan suggests a carrying capacity of 4,280 vehicles. It should be noted, however, that this figure includes 1,280 vehicles allocated to the Pismo State Beach *non-vehicle* area. In addition, the figure was based primarily on *recreational* capacity analyses from other State Park units, with particular focus on the appropriate threshold number of vehicles that would maintain a beneficial visitor experience. It was not based on a comprehensive ecological analysis of the Oceano Dunes environment in relation to the appropriate number of OHVs. Thus, the current limit of 4,300 vehicles is somewhat arbitrary both in its derivation, and applicability to the ODSVRA 25 years later. However, the Department of Parks and Recreation (DPR) concludes that the 4,300 figure would not have any adverse effects, based on the results of data collection and data interpretation concerning visitor types, interaction and compatibility of uses, visitor safety, sensitive natural resources, air quality, and sanitation and traffic impacts on the local economy.

The limit of 4,300 day-use vehicles has historically been accepted absent any compelling evidence that it should be some other number. It is difficult to know if there is a better basis for any particular number over another for interim vehicle limits. Intuitively, it would seem that a lesser number of vehicles would have a lesser impact on the resources of the SVRA and a greater number of vehicles would have a greater impact. This concept also appears to be supported by the USFWS' critical habitat designation discussion in a previous section of this report. Permit 4-82-300 is silent on the magnitude of a reduction or increase in OHV and camping use. Under 4-82-300, the decision of how big an increase or decrease there should be was left to the Executive Director and the San Luis Obispo County Board of Supervisors, based on the results of an annual or any other review.

From 1982 to April 1999, only those day-use vehicles entering the SVRA under their own power (street-legal vehicles) were counted for attendance purposes. Towed or trailered day-use OHVs were not counted as a part of this established limit until May 1999. In the past, both the County of San Luis Obispo staff and the Commission staff have expressed the desire to have all OHVs counted. Such OHV counts would include both those OHVs brought into the SVRA by day use vehicles and those towed or trailered via overnight vehicles.

It is important to note that because the counting of vehicles and more recently, OHVs, has historically been divided by activity (i.e. day-use or camping), the two activities have rarely been analyzed together. Thus, a comprehensive understanding of how many street-legal vehicles and OHVs are in the Park at any given time is not readily apparent. Because a camping unit is defined as one vehicle entering the Park under its own power, regulation of the number of camping units has focused entirely

on the number of street-legal vehicles, and not OHVs, entering the Park. For example, on August 12, 2000, 1,167 street-legal vehicles trailering 264 OHVs entered the Park through one of the kiosks and paid a day-use fee. On the same day, 1,241 street-legal vehicles trailering 843 OHVs spent that night in the Park and paid a camping fee. Based on historic counting and data recording methods, the number of day-use vehicles that entered the ODSVRA would be interpreted as 1,431 (1,167 + 264) and the number of camping units would be 1,241. Total vehicles that entered the Park on this day, though, was actually 3,515. Under DPR's proposal, the additional 843 OHVs brought into the Park by camping units would be exempt from any day-use or camping vehicle limit.

While both camping and OHV day use affect the ODSVRA environment, OHV day use is potentially more harmful since it entails driving vehicles over the dunes and possibly into sensitive sites. In contrast, most street-legal vehicles and camping units entering the ODSVRA tend to stay along the beach, as they are unable to traverse the dunes. Due to potential resource impacts and user conflicts associated with OHVs, and in order to continue establishing baseline monitoring data, the staff recommends that all OHVs be counted and be subject to a separate vehicle limit than the street-legal vehicles. Such OHV counts would include both those OHVs brought into the SVRA by day use vehicles as well as those towed or trailered by vehicles intending to camp overnight. DPR has been able to count all OHVs as they enter the Park through one of two kiosks since May 1999; however, there is currently no clear limit on the number of OHVs that can be brought into the ODSVRA. Placing a limit on OHVs would not only ensure that they continue to be counted separately, it would also allow for future adjustment to OHV limits without necessarily adjusting the street-legal vehicle limit. More important, it would mark the beginning of a more scientifically valid monitoring system to better manage impacts. For example, if further studies reveal that OHVs pose the largest threat to snowy plovers, least terns, and their habitat, then limitations on that type of use should be considered independently from limitations on street-legal vehicle use.

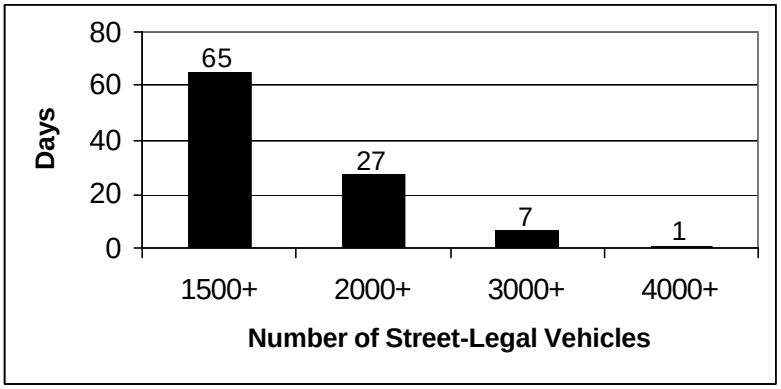
Campers at the ODSVRA are usually also there for OHV day use; however, camping per se is relatively passive. This is not to say that camping does not have any impacts. Since there are no designated campsites, camping occurs wherever vehicles are allowed. Thus it is possible for there to be campsite remains (charcoal, partially burned wood, cans, bottles, etc.) anywhere, not just confined to a designated campsite.

Although a change in the day use and camping vehicle limits may be subject to update and refinement in the future, based on ongoing monitoring efforts and as we learn more about use trends and potential resource impacts, interim limits need to be established at this time. Perhaps the most important conclusion that can be reached from the vehicle use counts provided for the last 18 years is that the data strongly suggests that both current levels and patterns of visitor use have not reached the established vehicle limits, except on busy holiday weekends. In light of this, and in an effort to establish day-use vehicle and camping limits which more closely ~~matches both the current levels of use~~ reflect those recognized at the time of coastal development 4-82-300 approval and which serve~~s~~ to protect the biological resources of the ODSVRA, separate limits should be placed on street-legal vehicles, OHVs, and camping units.
In addition, lacking specific impact evidence, allowances may be made for interim street-legal and off-highway vehicle limits to be exceeded only during the four major holiday periods of Memorial

Day, July 4th, Labor Day, and Thanksgiving, as proposed by DPR. Given the lack of evidence though (due to lack of specific data collection and monitoring during these holiday periods), to conclude that such allowances should not be made, exceptions to vehicle limits will be permitted during an initial three-year period to allow for comprehensive monitoring and comparative analysis of historical levels of visitor uses and impacts during these highest attendance periods. If further monitoring reveals that sensitive resources of the ODSVRA are being severely degraded during these peak holiday periods, the TRT would be expected to re-evaluate such exceptions to vehicle limits, or consider management measures to respond to such peak usage.

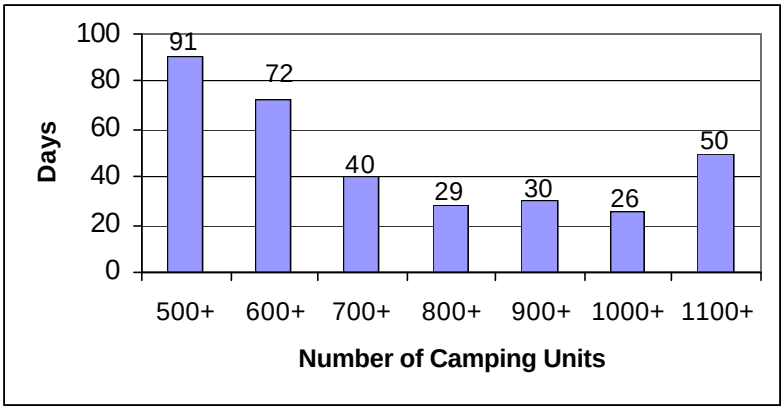
Based on historical and current use patterns, as seen in Figure 14, the number of street-legal vehicles entering the ODSVRA on a daily basis has exceeded 3,000 only eight times over the last 16 ½ years (approximately 0.13%). A closer look at the data reveals that every one of these instances occurred during the peak season (May – September), particularly on the 4th of July. ~~Thus, if an interim day use limit of 3,000 street-legal vehicles was established, DPR would perhaps be forced to turn away additional vehicles on approximately one day every two years (0.47 days per year) during the peak season. However, given that vehicle limits may be exceeded on the four major holiday weekends, it is possible that DPR may not have to turn away street-legal vehicles.~~

Figure 14 – Number of Days Street-Legal Vehicle Count Exceeded 1,500 Vehicles (1984-2000)



Based on historical and current use patterns, as seen in Figure 15, the number of camping units (street-legal vehicles) staying overnight in the ODSVRA has exceeded 1,000 a total of 76 times over the last 16 ½ years (approximately 1.3%). Thus, if an interim camping limit of 1,000 units was continued, as required by the current coastal development permit and proposed by DPR, it may be exceeded on approximately five days during the peak season each year. However, based on historical data, these days would most likely occur during the 4th of July, Memorial Day, and Labor Day weekends, and thus, would not be subject to the 1,000 camping unit limit. Therefore, it is unlikely that DPR would be forced to turn away camping units.

Figure 15 – Number of Days Camping Units Exceeded 500 Vehicles (1984-2000)



Based on three visitor surveys, which occurred between 1991 and 1996, estimated OHV/street-legal vehicle ratios ranged from 0.36 throughout most of the year to 0.81 during the peak season. As discussed previously, updated OHV/street-legal vehicle ratios were determined based on 1999-2000 vehicle data, which revealed that the average OHV/street-legal vehicle (including camping units) ratio is 0.5 during the peak season (May through September) and 0.43 during the off-season (October through April). In order to determine an appropriate (in terms of reflecting current use ~~-~~and long-term trends) limit on OHVs, a ratio of 0.~~5~~40 was applied to the ~~above-mentioned~~ existing limit of 4,300 total (street-legal and off-highway vehicles) ~~street-legal~~ day-use vehicle ~~and overnight camping unit~~ limit~~s~~. This application results in an interim limit of 1,720 ~~2,000~~ OHVs ~~((3,000 + 1,000) x 0.5)~~(4,300 x 0.40).

A method to evaluate visitor impacts and management effectiveness is critical to the establishment of interim vehicle use limits. DPR's monitoring and evaluation protocols and the establishment of a TRT to provide recommendations to the Superintendent provide the means to critically analyze the SVRA attendance impacts and evaluate the effectiveness of SVRA management actions to mitigate impacts. Thus, vehicle use limits may be continually updated to reflect changing conditions and results of various monitoring efforts. However, in the interim, ~~staff recommends~~ the Commission finds that a limit of ~~3,000~~ 2,580 street-legal vehicles per ~~24-hour period~~ day, 1,000 camping units (defined as one street-legal vehicle that enters the Park under its own power) per night, and a total of ~~2,000~~ 1,720 off-highway vehicles at any given time ~~per day~~ is appropriate. In other words, the maximum vehicle use in a 24-hour period would be ~~4,000~~ 3,580 street-legal vehicles and ~~2,000~~ 1,720 OHVs.

8. Conclusion

Having established that the ODSVRA qualifies as ESHA under the Coastal Act, the Commission must find that the activities at the ODSVRA protect ESHA, and that any "development" will prevent impacts that significantly degrade or threaten the continuance of surrounding ESHA (Coastal Act Section 30240). In addition, the Commission must find that the activities at the ODSVRA will sustain the biological productivity of coastal waters (Coastal Act Sections 30230 and 30231), and protect against the spillage of crude oil, gas petroleum products (Coastal Act section 30232).

It is important to recognize that in its stewardship role, DPR has undertaken considerable proactive management measures to mitigate for recreational impacts and protect sensitive species and habitat in the park. These measures include fencing of vegetated islands, fencing of snowy plover and least tern nests, and revegetation of areas now closed to OHV use. In addition, DPR continues to work with other agencies such as the U.S. Fish and Wildlife Service in pre-permit actions to establish snowy plover and least tern nest protection measures. New monitoring systems have also been developed and implemented that will play an increasingly important role in on-going management of the Park.

DPR's vegetation efforts began in 1983 under permit 4-82-300 and involved the professional input of the Coastal Commission, Department of Fish and Game, San Luis Obispo County, and DPR. Initially, vegetation islands were identified and protective fencing placed around them. Large parts of the eastern and southern portions of the SVRA were fenced to restrict vehicle entry into vegetated areas

and wetlands, including Oso Flaco Lake and Creek. While the location of the initial fencing did not necessarily mean that there might not be other areas that could be considered sensitive upon review and analysis of additional information, the findings of permit 4-82-300 do not indicate that additional areas beyond those identified at that time were considered "sensitive."

In general, efforts made towards vegetation enhancement have taken place in the areas previously designated as protected sensitive resource area, and have not taken place in the "open" ride areas. The exceptions to this are some areas located either upwind of Oso Flaco Lake or some of the "vegetated islands". Based on aerial photography and on-the-ground inspection, vegetated areas that were fenced off have generally become more densely vegetated and less fragmented (see Exhibit 7). The most recent aerial photos (1993) reveal that at those locations in which restoration efforts have occurred, not only has the deterioration been arrested, but also in most cases, it has either been effectively reversed or completely restored. Generally, these photos show that:

1) The vegetation has made substantial recovery in those habitat areas where it naturally occurs (i.e. generally in those habitats that are protected from onshore winds and sufficiently close to the water table).

2) Most of the protected sensitive areas commonly referred to as "vegetation islands" are today characterized by a mixture of both generally contiguous vegetation and open sand; the proportion of each principally determined by environmental conditions.

3) In 1978, these protected sensitive resource areas were characteristically of a highly fragmented nature. This was principally due to the network of trails that had been created during the previous forty years of recreational vehicle use. The 1993 photos reveal how those same trails are generally non-existent or at least much diminished.

4) In addition to an expansion in vegetative cover within these protected sensitive resource areas, there has also been a noticeable increase in the density of the vegetation. The Carrying Capacity Study found that the total vegetative cover in 1994 was 138 percent of that which existed in 1983; when revegetated areas were included, the increase was 308 percent. Density in 1994 was 218 percent of that in 1983; when revegetated areas were included, the increase was 435 percent.

5) With the advent of improved restoration techniques (and perhaps more importantly with the end of one of California's more historically significant droughts), the pioneer plant species which characterize this ecosystem are finally realizing those conditions which will and have allowed for their re-establishment.

There is little doubt that DPR's management policies have enhanced vegetation island habitats by excluding OHVs from those areas. Similarly, by excluding OHVs from snowy plover and least tern nesting sites, DPR has enhanced the viability of those species. Because snowy plovers and least terns are holding their own at the ODSVRA, one can assume that the current management measures adopted by DPR are effective at some level. In this regard, DPR is protecting specific ESHA to the maximum extent feasible given the types of uses that occur at the ODSVRA.

However, regardless of measures employed by DPR throughout the nesting season to protect snowy plovers and least terns, the recreational activities made possible by the establishment of the ODSVRA will continue to harm or cause the direct mortality of these birds. Thus, in order to decrease the potential for "take" of snowy plovers and least terns, the activities that put them in danger should be appropriately restricted. However, we do not have adequate evidence (due to lack of specific information) to determine the severity of such impacts as they relate to the intensity of use at the Park. In other words, we do not know to what level sensitive resources may be more greatly impacted by 4,000 vehicles, than by, for example, 1,000 vehicles. So, while the recommended day-use vehicle and overnight camping ~~vehicle use~~ limits ~~more or less~~ reflect ~~current use levels of the ODSVRA~~ those established in 1975 and 1983, respectively, the TRT can assess the various impacts in relation to the intensity of use at the Park. Through such an adaptive management approach, the TRT will be able to protect ESHA to the maximum extent possible within the broader context of balancing DPR's recreational mandate with Coastal Act Policies. For example, expanding the southern seasonal exclosure area provides the TRT with a control area large enough to effectively study the potential impacts of recreational activities on Western snowy plovers, and make management decisions in the future based upon the information gained from those studies.

Thus, critical to the establishment of interim vehicle use limits is a means to evaluate visitor impacts and management effectiveness. DPR's monitoring and evaluation protocols and the establishment of a TRT to provide recommendations to the Superintendent provide the means to critically analyze the SVRA attendance impacts and evaluate the effectiveness of SVRA management actions to mitigate impacts. The intensity of use at the ODSVRA, which is further restricted by Special Condition 3 of this coastal development permit amendment, will be closely monitored and analyzed for the extent to which this level of use impacts snowy plovers, least terns, and the dune system. In addition, the recommended interim vehicle limits will serve as the principal basis for making any necessary adjustments in the future, based on recommendations from the TRT. Thus, the interim vehicle use limits should not be viewed as the ODSVRA's carrying capacity; rather they serve as starting points from which the TRT may make adjustments based on what is learned over the years.

Special Condition 6 of Coastal Development Permit 4-82-300 requires that OHV access and the number of camp units within the ODSVRA be further limited, or increased, based on an annual (or any other) review that evaluates the extent to which environmentally sensitive habitats and community values are protected. The concept of a Technical Review Team, given its ability to initiate and review studies, make recommendations based on changing circumstances and new information, and its authority to advise the Superintendent of the ODSVRA in adjustments to vehicle use limits, meets the intent of Special Condition 6 of Coastal Development Permit 4-82-300.
As proposed by DPR, the TRT will prepare annual (October – September) reports that highlight the TRT's major accomplishments, projects, correspondence, and recommendations as well as a summary of subcommittees, working groups, and task force activities. These annual reports will be submitted to San Luis Obispo County and the California Coastal Commission for informational purposes no later than January 1st of the following year. Special Condition 45 identifies the necessary information to be included in the annual reports and suggests priority research and management projects for the TRT's consideration.

In addition, this coastal development permit is conditioned to be reviewed ~~three years~~ annually from the date of final approval, ~~and every five years thereafter,~~ in order to evaluate the overall effectiveness of the Technical Review Team in managing vehicle impacts at the ODSVRA. If, after ~~three years, a~~ any annual review, ~~of~~ the TRT's tasks and recommendations are found to be inconsistent with the intent of the Commission's approval, an alternative approach to resource management, or set of management measures, may need to be instituted.

As discussed previously, the Oceano Dunes is a complex ecological system that also supports a variety of recreational activities pursuant to DPR's legislative mandate. The adaptive management approach, made possible by the TRT, provides a more responsive management process for effectively balancing EHSA protection with the existing recreational use. The likelihood of minimizing significant disruption of sensitive habitat is enhanced through the provision of such a management process. In addition, this approach is consistent with the Commission's on-going management of coastal resources at Oceano, which have always been premised on revisiting periodically the question of intensity of use in relation to protection of ESHA. Finally, as conditioned to reevaluate the TRT effectiveness in managing impacts, efforts to protect ESHA will be maximized within the broader context of balancing DPR's recreational mandate with Coastal Act Policies. Thus, DPR's proposed coastal development permit amendment, as conditioned, is consistent with Coastal Act Sections 30230, 30231, 30232, and 30240.

V. CALIFORNIA ENVIRONMENTAL QUALITY ACT (CEQA)

Section 13096 of the California Code of Regulations requires that a specific finding be made in conjunction with coastal development permit amendment applications showing the application to be consistent with the California Environmental Quality Act (CEQA). Section 21080.5(d)(2)(A) of CEQA prohibits a proposed development from being approved if there are feasible alternatives or feasible mitigation measures that would substantially lessen any significant adverse effect that the project may have on the environment.

The Coastal Commission's review and analysis of land use proposals has been certified by the Secretary of Resources as being the functional equivalent of environmental review under CEQA. The impacts of the proposed interim limits on vehicle use within the ODSVRA and the establishment of a Technical Review Team have been discussed in this staff report. The proposed permit amendment is being approved subject to conditions which implement the mitigating actions required of the Applicant by the Commission (see Special Conditions of Approval). As such, the Commission finds that only as modified and conditioned will the proposed coastal development permit amendment not have any significant adverse effects on the environment within the meaning of CEQA.